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**National Highway  
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Bloomington, Indiana 47403-1599

**ON-SITE AIR BAG INVESTIGATION**

CASE NO. - 95-18  
FLEET - COMMERCIAL VEHICLE  
LOCATION - [REDACTED] PENNSYLVANIA  
ACCIDENT DATE - [REDACTED] 1995

Submitted By:

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and  
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The crash investigation process is an inexact science which requires that physical evidence such as skid marks, vehicular damage measurements, and occupant contact points be coupled with the investigator's expert knowledge and experience of vehicle dynamics and occupant kinematics in order to determine the pre-crash, crash, and post-crash movements of involved vehicles and occupants.

Because each crash is a unique sequence of events, generalized conclusions cannot be made concerning the crashworthiness performance of the involved vehicle(s) or their safety systems.

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16. Abstract This report covers an on-site investigation of an air bag deployment crash that involved a 1995 Jaguar XJS, 2-door, convertible, 2+2 and a 1994 Cadillac Concours, 4-door sedan. The XJS was traveling east in the eastbound lane of a two-lane, undivided, State highway. The Concours was traveling north in the northbound lane of a two-lane, undivided, city street. The front right half of the XJS (case vehicle) impacted the left front of the Concours (vehicle #2) causing only the case vehicle's right front passenger supplemental restraint system (air bag) to deploy. Vehicle #2 was also equipped with both driver and right-front passenger supplemental restraint systems (air bags) which did not deploy as a result of the left front impact. The driver of the case vehicle braked and steered left across the east-west centerline prior to impact. The case vehicle rotated approximately 15 degrees counterclockwise after impact and came to rest heading northeast in the westbound lane of the State roadway. According to the Police Accident Report, the driver of vehicle #2 steered toward the right prior to impact. Vehicle #2 rotated approximately 45 degrees clockwise after impact and came to rest heading northeast on the east leg of the intersection straddling the east-west lanes. The case vehicle's driver (38 year-old female) was also restrained by her available, active, three-point lap and shoulder belt and, according to her interview and son's medical records, she did not sustain any injuries as a result of this crash. The right front passenger in the case vehicle (3 year-old male) was seated in a child booster seat which was restrained by his available, active, three-point lap and shoulder belt, and sustained, according to his medical records and the interview with the trauma physician who treated the child, critical brain injuries which included: a shear injury to the right side of his brain stem, right cerebral white matter shearing injuries, a small contusion, subdural hematoma, and subarachnoid hemorrhage in the right temporal area, diffuse right brain swelling, and a concussion (i.e., GCS=3, decerebrate posturing, pupils fixed and nonreactive). In addition, he sustained a right nasal fracture, bilateral periorbital ecchymoses, multiple facial abrasions, and multiple contusions. Vehicle #2's driver and right front passenger (80 year-old male and 81 year-old female, respectively) were listed on the Police Accident Report as restrained and as not sustaining any injury as a result of this crash.				13. Type of Report and Period Covered [REDACTED] 1995	
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# TRC/IU ON-SITE AIR BAG INVESTIGATION

TRC/IU CASE NO. 95-18

FLEET - COMMERCIAL VEHICLE  
LOCATION [REDACTED], PENNSYLVANIA

## SUMMARY

This report concerns a motor vehicle crash involving an air bag equipped 1995 Jaguar XJS, 2-door, convertible, 2+2 and a 1994 Cadillac Concoors, 4-door sedan occurring on [REDACTED] 1995 at 1:01 p.m., in [REDACTED] Pennsylvania on a State road. This crash is of special interest because the right front passenger in the case vehicle sustained critical brain injuries when struck by the case vehicle's deploying right front air bag.

The XJS was traveling east in the eastbound lane of a two-lane, undivided State highway when it impacted the Concoors which was traveling north in the northbound lane of a two-lane, undivided, city street. The driver of the XJS braked and steered left across the east-west centerline prior to impact. The XJS rotated approximately 15 degrees counterclockwise after impact and came to rest heading northeast in the westbound lane of the State roadway. According to the Police Accident Report, the driver of the Concoors steered toward the right prior to impact. The Concoors rotated approximately 45 degrees clockwise after impact, and came to rest heading northeast on the east leg of the intersection straddling the east-west lanes.

The front right half of the XJS impacted the left front of the Concoors. The CDCs were determined to be: 01-FZEW-1 for the XJS and 09-LYEW-2 for the Concoors. The CRASHPC reconstruction program, damage only algorithm, was used on the impact (highest severity) to the Jaguar. The Total, Longitudinal, and Lateral Delta Vs are respectively: 14 k.p.h. (9 m.p.h.), -14 k.p.h. (-8 m.p.h.), and -5 k.p.h. (-3 m.p.h.).

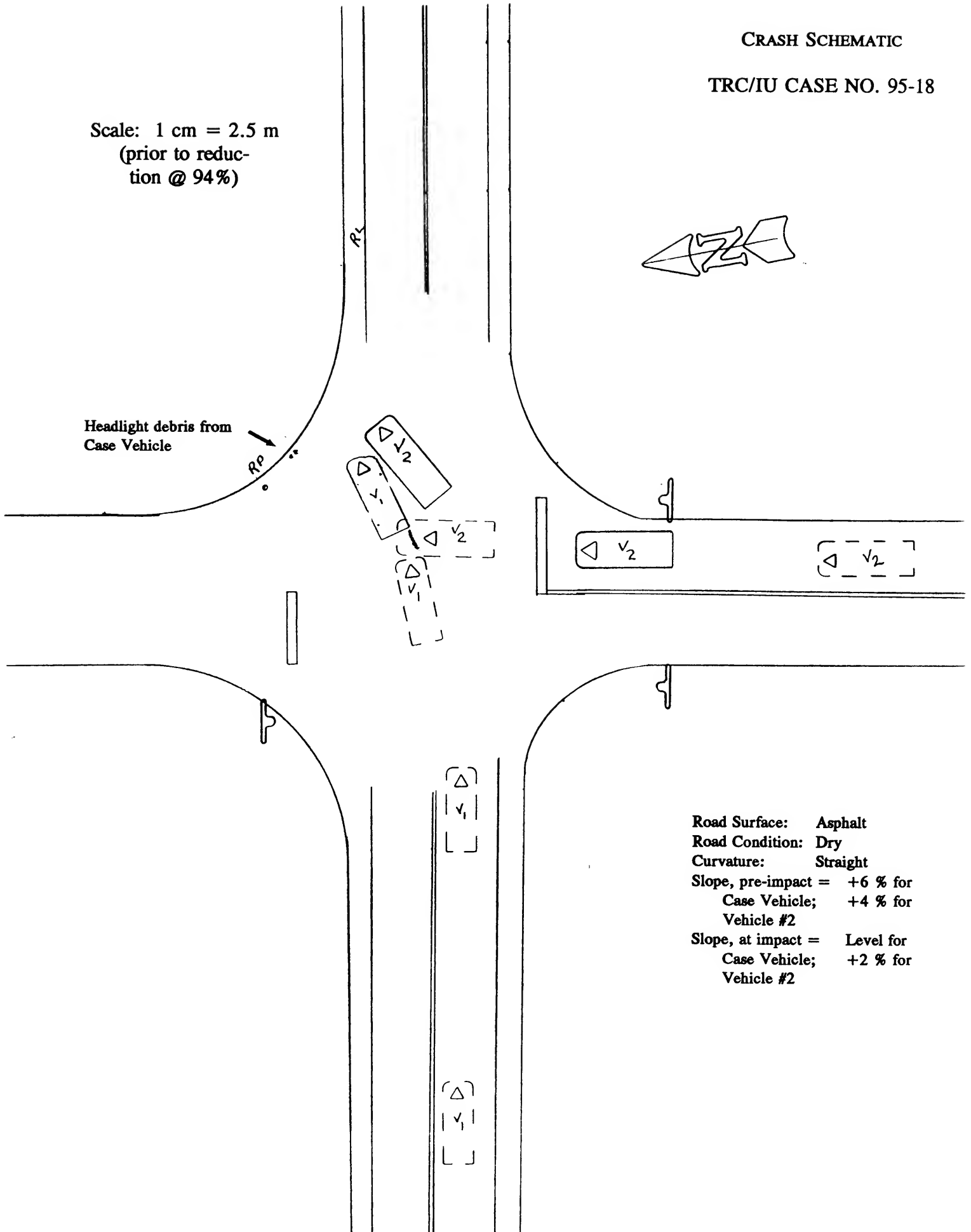
The 1995 Jaguar XJS was equipped with both driver and right-front passenger supplemental restraint systems (air bags) which used "*Breed, independent, mechanical sensors*". Only the right front passenger air bag deployed as a result of the frontal impact. The driver of the vehicle (38 year-old female) was also restrained by her available, active, three-point lap and shoulder belt. According to her interview, her son's medical records, and the Police Accident Report, she did not sustain any injury as a result of this crash. The right front passenger (3 year-old male) in the Jaguar was seated in a child booster seat which was restrained by his available, active, three-point lap and shoulder belt. According to his medical records and the interview with the trauma physician who treated the child, he sustained critical brain injuries including: a shear injury to the right side of his brain stem, right cerebral white matter shearing injuries, a small contusion, subdural hematoma, and subarachnoid hemorrhage in the right temporal area, diffuse right brain swelling, and a concussion (i.e., GCS=3, decerebrate posturing, pupils fixed and nonreactive). In addition, he sustained a right nasal fracture, bilateral periorbital ecchymoses, multiple facial abrasions, and multiple contusions. He was listed on the Police Accident Report as sustaining an "A" (incapacitating) injury as a result of this crash.

The 1994 Cadillac Concoors was equipped with both driver and right-front passenger supplemental restraint systems (air bags) which did not deploy as a result of the left front impact. The driver and right front passenger (80 year-old male and 81 year-old female, respectively) of the Cadillac were listed on the Police Accident Report as not sustaining any injury as a result of this crash.

# CRASH SCHEMATIC

TRC/IU CASE NO. 95-18

Scale: 1 cm = 2.5 m  
(prior to reduction @ 94%)



# TRC/IU ON-SITE AIR BAG INVESTIGATION

TRC/IU CASE NO. 95-18

FLEET - COMMERCIAL VEHICLE  
LOCATION [REDACTED] PENNSYLVANIA

## ACCIDENT DATA

Location/Street: State Road inside a municipality  
City/Township: [REDACTED] Pennsylvania  
Area/Type: Urban, residential  
Accident Date/Time: Wednesday, [REDACTED] 1995, @ 1:01 p.m.  
Investigating Police Agency: [REDACTED] Police Department  
Accident Type: Car / Car - right angle  
Occupant Injury Severity (air bag vehicle): Diffuse axonal (white matter shearing) injuries (AIS-5)

## AMBIENT CONDITIONS

Light Conditions: Daylight  
Weather Condition: Clear, no clouds  
Precipitation: None  
Road Surface: Dry

## ROADWAY

	<u>Case Vehicle</u>	<u>Vehicle #2</u>
Location:	State road	City street
Number of Travel Lanes:	2-lanes, undivided	2-lanes, undivided
Width:	6.7 meters (22.0 feet)	8.1 meters (26.6 feet)
Surface Type:	Bituminous	Bituminous
Median:	None	None
Shoulders:	Improved, bituminous: 1.4 m (4.6 ft) on south, 1.2 m (3.9 ft) on north	Curbed, unimproved shoulders

## ROADWAY (CONTINUED)

	<u>Case Vehicle</u>	<u>Vehicle #2</u>
Vertical alignment:	Pre-impact, 6 % positive to east; at impact, level	Post-sag pre-impact, 4 % positive to north; at impact 2 % positive to north
Horizontal alignment:	Straight	Straight
Estimated Coefficient of Friction:	.75	.80
Traffic Density:	Moderate	Moderate

## TRAFFIC CONTROLS

	<u>Case Vehicle</u>	<u>Vehicle #2</u>
Signals:	None	None
Signs:	Regulatory sign: SPEED LIMIT	Regulatory signs: STOP and END SPEED LIMIT
Markings:	Double solid yellow center lines, solid white edge lines on north and south road edges	Double solid yellow center lines
Speed Limit:	56 k.p.h. (48 m.p.h.)	48 k.p.h. (30 m.p.h.)

## VEHICLES

	<u>Case Vehicle</u>	<u>Vehicle #2</u>
Year:	1995	1994
Make:	Jaguar	Cadillac
Model:	XJS	Concours
Body Type:	2-door convertible, 2+2, 4-passenger	4-door sedan, 6-passenger
V.I.N.	SAJNX2745SC-----	1G6KF52Y8RU-----
Color:	Navy Blue	Brown
Mileage:	7,599 km (4,722 miles)	14,595 km (9,069 miles)
Engine:	4.0 liters, I-6	4.6 liters, V-8
Transmission:	4-speed automatic	4-speed automatic

## VEHICLES (CONTINUED)

	<u>Case Vehicle</u>	<u>Vehicle #2</u>
Steering:	Power-assisted, rack-and-pinion	Power-assisted, rack-and-pinion
Brakes:	Power-assisted, 4-wheel disc	Power-assisted, 4-wheel disc
Padding:	Steering wheel and hub, sunvisors, dash, "A"-pillars, side door surfaces	Steering wheel and hub, sunvisors, dash, "A"-pillars, side door surfaces
Active Restraints:	3-point, manual, lap and shoulder belts in front and rear outboard seating positions	3-point, manual, lap and shoulder belts in front and rear outboard seating positions; lap belt only at front and rear center positions
Passive Restraints:	Factory installed driver and right front passenger supplemental restraint systems (air bags) which used <i>"Breed, independent, mechanical sensors"</i>	Factory installed driver and right front passenger supplemental restraint systems (air bags)
Defects:	None	None
Fleet:	Commercial vehicle	Private vehicle
Tow status:	Towed due to damage	Towed due to damage

## VEHICLE DAMAGE

EXTERIORDeployment Impact

	<u>Case Vehicle</u>	<u>Vehicle #2</u>
Event number:	First	First
Object Struck:	Vehicle #2	Case Vehicle
Damage location		
Damaged Plane:	Front	Left
Vertical Location		
On Plane:	Bumper	Above sill, mid-door
Direct Begins:	At right bumper corner	61 cm (24.0 in) forward of left front axle
Length Direct:	94 cm ( 37.0 in)	147 cm ( 57.9 in)
Field L:	160 cm ( 63.0 in)	177 cm ( 69.7 in)
C <sub>1</sub> :	0 cm ( 0.0 in)	0 cm ( 0.0 in)

## VEHICLE DAMAGE (CONTINUED)

**EXTERIOR** (Continued)**Case Vehicle****Vehicle #2****Deployment Impact** (Continued)

C <sub>2</sub> :	1 cm ( 0.4 in)	3 cm ( 1.2 in)
C <sub>3</sub> :	8 cm ( 3.1 in)	8 cm ( 3.1 in)
C <sub>4</sub> :	16 cm ( 6.3 in)	11 cm ( 4.3 in)
C <sub>5</sub> :	26 cm ( 10.2 in)	5 cm ( 2.0 in)
C <sub>6</sub> :	33 cm ( 13.0 in)	4 cm ( 1.6 in)
D:	+33 cm (+13.0 in)	+133 cm (+52.4 in)
Maximum Crush:	33 cm ( 13.0 in)	11 cm ( 4.3 in)
Location:	C <sub>6</sub>	C <sub>4</sub>
CDC:	01-FZEW-1	09-LYEW-2
Damaged Components:	Bumper, hood, grille, right front headlight assembly, right and left fenders	Left front fender, door, and wheel assembly

**INTERIOR**

Damaged Components:	Right front passenger air bag module	None
Other Evidence of Occupant Contact:	Blood on right front air bag	None
Manual Restraint System Failures:	None	None
Seat Performance Failures:	None	None

**REPAIR**

Cost Estimate:	Unknown	Unknown
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## VEHICLE VELOCITY ESTIMATES

**Highest Delta "V"****Case Vehicle****Vehicle #2**

Reconstruction Program:	CRASHPC and EDCRASH	CRASHPC and EDCRASH
Program Algorithm:	Damage only	Damage only
Travel Speed:	48 k.p.h. ( 30 m.p.h.)	16 k.p.h. ( 10 m.p.h.)
Total Delta "V":	14 k.p.h. ( 9 m.p.h.)	13 k.p.h. ( 8 m.p.h.)



## VEHICLE VELOCITY ESTIMATES (CONTINUED)

<u>Highest Delta "V"</u>	<u>Case Vehicle</u>	<u>Vehicle #2</u>
Longitudinal Delta "V":	-14 k.p.h. ( -8 m.p.h.)	-2 k.p.h. ( -1 m.p.h.)
Lateral Delta "V":	-5 k.p.h. ( -3 m.p.h.)	+13 k.p.h. ( +8 m.p.h.)

**APPENDIX B** contains the CRASHPC run, the CRASHPC barrier option runs for both vehicles, and five EDCRASH runs which attempted to more accurately estimate the Delta Vs.

## COLLISION SEQUENCE

**PRE-CRASH:** According to the Police Accident Report, the case vehicle driver, and the scene inspection, the case vehicle (XJS) was traveling east in the eastbound lane of a two-lane, undivided State highway and was attempting to continue in its eastbound direction of travel. According to the Police Accident Report and the scene inspection, vehicle #2 (Concours) was traveling north in the northbound lane of a two-lane, undivided, city street and was entering the intersection from a stop and attempting to proceed in its northward direction of travel. According to the Police Accident Report and the scene evidence, the driver of the case vehicle braked and steered left across the east-west centerline prior to impact, and the driver of vehicle #2 steered toward the right prior to impact. The crash occurred in the four-leg, cross intersection of the two roadways.

**CRASH:** According to the vehicle inspections, The front right half of the case vehicle impacted the left front of vehicle #2. The case vehicle was equipped with both driver and right-front passenger supplemental restraint systems (air bags) which used "*Breed, independent, mechanical sensors*". Only the right front passenger air bag deployed as a result of the frontal impact. Vehicle #2 was equipped with both driver and right-front passenger supplemental restraint systems (air bags) which did not deployed as a result of the left front impact. According to the scene evidence, the case vehicle rotated approximately 15 degrees counterclockwise after impact and came to rest heading northeast in the westbound lane of the State roadway. Vehicle #2 rotated approximately 45 degrees clockwise after impact, and came to rest heading northeast on the east leg of the intersection straddling the east-west lanes.

**POST-CRASH:**

**Occupants:** According to the driver of the case vehicle, she and her son (i.e., the right front passenger) remained inside the vehicle at final rest. She was conscious and was able to exit the case vehicle. The right front passenger was unconscious and was unable because of his injuries to exit the case vehicle. According to the Police Accident Report, the interview with the case vehicle's driver, and the child's medical records, the driver removed her son from the vehicle and placed him on the ground at the scene prior to the arrival of the police and emergency medical services. According to the driver of the case vehicle and the vehicle inspection, she was also restrained by her available, active, three-point lap and shoulder belt. In addition, the right front passenger was seated in a child booster

## COLLISION SEQUENCE (CONTINUED)

## Post-Crash: Occupants: (Continued)

seat which was restrained by his available, active, three-point lap and shoulder belt. According to the Police Accident Report and the vehicle inspection, vehicle #2's driver and right front passenger were also restrained by their available, active, three-point lap and shoulder belts.

**Police:** The investigating police agency was notified of the accident shortly after it occurred and arrived on-scene within four minutes. Traffic control procedures were established and emergency medical, air evacuation, and towing services were called to assist.

**Rescue:** According to the case vehicle's driver, she was transported but did not receive or require medical treatment. According to the Police Accident Report, the right front passenger was transported by ambulance to a nearby playground where a helicopter transported the child to a medical facility where he was hospitalized. According to her interview and the Police Accident Report, the case vehicle's driver did not sustain any injury as a result of this crash. According to his medical records and the interview with the trauma physician who treated the child, he sustained critical brain injuries including: a shear injury to the right side of his brain stem, right cerebral white matter shearing injuries, a small contusion, subdural hematoma, and subarachnoid hemorrhage in the right temporal area, diffuse right brain swelling, and a concussion (i.e., GCS=3, decerebrate posturing, pupils fixed and nonreactive). In addition, he sustained a right nasal fracture, bilateral periorbital ecchymoses, multiple facial abrasions, and multiple contusions. The driver and right front passenger of vehicle #2 were listed on the Police Accident Report as not sustaining any injury as a result of this crash.

**Removal:** Following the police investigation, the case vehicle and vehicle #2 were towed from the scene.

## HUMAN FACTORS OCCUPANT DATA

	<u>Case Vehicle</u>	<u>Vehicle #2</u>
<b>DRIVERS:</b>	38 year-old female	80 year-old male
<b>Height:</b>	170 cm (67 in)	Unknown
<b>Weight:</b>	64 kg (140 lbs)	Unknown
<b>Occupation:</b>	Housewife	Unknown, most likely retired
<b>Active Restraint System/Usage:</b>	3-point lap and shoulder/Used	3-point lap and shoulder/Used

## HUMAN FACTORS/OCCUPANT DATA (CONTINUED)

<b>DRIVERS: (Continued)</b>	<b><u>Case Vehicle</u></b>	<b><u>Vehicle #2</u></b>
Usage Source:	Vehicle inspection, Interviewee, and Police Accident Report	Vehicle inspection and Police Accident Report
Passive Restraint System/Usage:	Factory installed driver side supplemental restraint system (air bag)/air bag did not deploy	Factory installed driver side supplemental restraint system (air bag)/air bag did not deploy
Usage Source:	Vehicle inspection, Interviewee, and Police Accident Report	Vehicle inspection and Police Accident Report
Eye glasses/contacts:	None	Unknown
Vehicle Familiarity:	Only driven vehicle 5 or 6 times, unknown mileage	Unknown
Route Familiarity:	Daily	Unknown
Trip Plan:	Home to School	Unknown
Manner of Leaving Scene:	Ambulance	Unknown
Type of Medical Treatment:	None	Unknown if treated
	<b><u>Case Vehicle</u></b>	<b><u>Vehicle #2</u></b>
RIGHT FRONT PASSENGER:	3 year-old male	81 year-old female
Height:	104 cm (41 in)	Unknown
Weight:	17 kg (37 lbs)	Unknown
Active Restraint System/Usage:	Child booster seat used in conjunction with 3-point lap and shoulder/Used	3-point lap and shoulder/Used
Usage Source:	Vehicle inspection, Interviewee, Police Accident Report	Vehicle inspection and Police Accident Report
Passive Restraint System/Usage:	Factory installed right front supplemental restraint system (air bag)/air bag deployed	Factory installed right front supplemental restraint system (air bag)/air bag did not deploy
Usage Source:	Vehicle inspection, Interviewee, Police Accident Report	Vehicle inspection and Police Accident Report
Eye glasses/contacts:	None	Unknown

## HUMAN FACTORS/OCCUPANT DATA (CONTINUED)

RIGHT FRONT PASSENGER: (Continued)	<u>Case Vehicle</u>	<u>Vehicle #2</u>
Manner of Leaving Scene:	Ambulance	Unknown
Type of Medical Treatment:	Hospitalized	Unknown if treated

## CASE VEHICLE DRIVER INJURIES

<u>Description of Injury</u>	<u>A.I.S.</u>	<u>Source of Data</u>	<u>Injury Mechanism</u>	<u>Certainty</u>
Not injured	0	7	Not applicable	Not applicable

CASE VEHICLE RIGHT FRONT PASSENGER INJURIES<sup>1,2</sup>

<u>Description of Injury</u>	<u>A.I.S.</u>	<u>Source of Data</u>	<u>Injury Mechanism</u>	<u>Certainty</u>
Brain stem shear injury involving right <sup>1</sup> pons and/or mid-brain	140206.5,8	2	Air bag, passenger side	{Certain}
Cerebral white matter shearing injuries involving the cortical gray-white junctions of the cerebral hemispheres, bilaterally, right caudate head and basal ganglia	140628.5,3 <sup>2</sup>	2	Air bag, passenger side	{Certain}
Cerebral contusion, right subfrontal and temporal lobes	140614.3,1	2	Air bag, passenger side	{Certain}
Subdural hematoma, small, over posterior right temporal lobe	140652.4,1	2	Air bag, passenger side	{Certain}
Diffuse brain swelling right cerebral hemisphere	140662.3,1	3	Air bag, passenger side	{Certain}
Subarachnoid hemorrhage over right temporal area	140684.3,1	3	Air bag, passenger side	{Certain}
Concussion: GCS=3, decerebrate posturing, pupils fixed and nonreactive	160824.5,0	2	Air bag, passenger side	{Certain}
Fracture right nasal bone	251000.1,4	2	Air bag, passenger side	{Certain}

<sup>1</sup> It is noteworthy that the majority of this child's brain injuries were diagnosed to the right side of his brain.

<sup>2</sup> Strictly according to NASS CDS injury coding protocol, the aspect "bilateral" is not allowed for these injuries; instead, an injury description for both the right and left sides is required. For the sake of simplicity, they have been combined in this report.

CASE VEHICLE RIGHT FRONT PASSENGER INJURIES<sup>3,4</sup> (CONTINUED)

<u>Description of Injury</u>	<u>A.I.S.</u>	<u>Source of Data</u>	<u>Injury Mechanism</u>	<u>Certainty</u>
Abrasions, facial (including: nose <sup>3</sup> , cheeks, lip, and chin <sup>4</sup> )	290202.1,0	2	Air bag, passenger side	{Certain}
Abrasion left forehead	290202.1,7	8	Air bag, passenger side	{Certain}
Contusions eyes, bilaterally <sup>3</sup>	297402.1,3 <sup>2</sup>	2	Air bag, passenger side	{Certain}
Contusions both shoulders	790402.1,3	8	Air bag, passenger side	{Certain}
Contusion left upper arm	790402.1,2	8	Air bag, passenger side	{Certain}
Contusion left anterior thigh	890402.1,2	8	Air bag, passenger side	{Probable}

## VEHICLE #2 DRIVER INJURIES

<u>Description of Injury</u>	<u>A.I.S.</u>	<u>Source of Data</u>	<u>Injury Mechanism</u>	<u>Certainty</u>
Not injured	0	7	Not applicable	Not applicable

## VEHICLE #2 RIGHT FRONT PASSENGER INJURIES

<u>Description of Injury</u>	<u>A.I.S.</u>	<u>Source of Data</u>	<u>Injury Mechanism</u>	<u>Certainty</u>
Not injured	0	7	Not applicable	Not applicable

## DRIVER KINEMATICS

According to the case vehicle's driver, her initial posture prior to recognition of the impending crash was: seated upright with her back against the seatback, both hands on the steering wheel, her left foot on the floor, and her right foot on the accelerator. According to the vehicle inspection, the driver's seat track was in the middle to rear position and the seatback was slightly reclined. According to the case vehicle's driver, upon recognition of the impending crash, she braked and steered to her left. This maneuver most likely would have sent the driver forward

<sup>3</sup> Cerebral spinal fluid (CSF) was noted to be running out (i.e., rhinorrhea) of this child's left nostril and an unspecified ear (otorrhea). No Battle's Sign was noted. These signs and the periorbital contusions (i.e., raccoon's eyes) are indicators of the presence of a basilar skull fracture. Although these clinical signs are consistent with a basilar skull fracture, no skull fractures were encoded because skull x-rays and brain CAT scan and MRI did not show the presence of any fractures.

<sup>4</sup> There was strong clinical evidence of a mandibular fracture, but the initial x-rays found no fracture or dislocation.

## DRIVER KINEMATICS (CONTINUED)

and to her right. Because she was wearing her available, active, 3-point lap and shoulder belt she remained in a relatively good driver position.

At impact the driver most likely moved forward and to the right towards the +20 degree PDOF. The case vehicle's dual sensitive (i.e, belt and inertia) belt restraints locked-up keeping the driver in a relatively good driving position. The driver's seatbelt use was supported by the case vehicle's interior inspection which showed that the driver's seatbelt retractor was jammed with the belt webbing still in the extended position. The driver's supplemental restraint system (air bag) did not deploy; the case vehicle used "*Breed, independent, mechanical sensors*" to activate each front air bag. Each independent mechanical sensor only activates when the pulse of the crash reaches each sensor's threshold. Because the crash pulse was primarily transmitted through the front right sensor, the threshold of the driver's independent mechanical sensor was not achieved which correctly kept the air bag from deploying as designed. According to the scene evidence, the case vehicle rotated approximately 15 degrees counterclockwise after impact and came to rest heading northeast in the westbound lane of the State roadway.

During this counterclockwise rotation the case vehicle's driver most likely moved to her right prior to coming to rest. According to the driver, she could not recall her seating position at final rest because her only concern was her 3 year-old's well being. At final rest the driver was most likely close to her original seating position because her belt restraints performed as designed. It should be noted that this driver did not sustain any injuries.

## PASSENGER KINEMATICS

According to the case vehicle's driver, the three year-old occupant (i.e., her son) was seated in his Century Breverra booster seat which was located on the right front passenger seat. The driver stated that prior to placing her son in the booster seat she made a special point to adjust the seatback so that it was flush against the back of the booster seatback. According to the mother/driver, her son had a tendency to fall asleep in cars while they are being driven. Prior to impact the three year-old's posture is unknown, but according to the mother/driver, besides being groggy and half asleep, his legs normally hang off the end of the booster over the edge of the seat. The case vehicle's interior inspection showed that his seat track was slightly rearward of the middle position with the seatback still in the slightly reclined position.

In this contractor's opinion<sup>5</sup>, the child's posture prior to the driver's avoidance maneuvers was: he was half asleep--as the driver stated, and most likely was leaning to his left with his head turned to the left away from the torso portion of his 3-point lap and shoulder belt which he was wearing at the time of the crash. The child's belt use was confirmed during the interior vehicle inspection. Blood drainage stains from the child's nose were found on both the lap and torso portion of the belt restraint system (see **SELECTED PHOTOGRAPHS #45 through #47**).

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<sup>5</sup> This contractor's opinion is based on occupant kinematic principles and on our own personal experience observing our own children seated in child safety seats.

## PASSENGER KINEMATICS (CONTINUED)

In this contractor's opinion, the torso portion of the belt was not directly over the clavicular portion of the child's shoulder but most likely across the proximal humeral portion of his right arm. This opinion is also supported by the testing<sup>6</sup> done at the Vehicle Research and Transportation Center (VRTC) in East Liberty, Ohio (see **SELECTED PHOTOGRAPHS #73 through #78**).

Essentially the video tape shows that in order for this three year-old occupant to have contacted the air bag where he did, his shoulder belt would have had to have been worn improperly (i.e. across his upper arm and the outer edge of the add-on bolster seat insert instead of atop his shoulder).

Because this vehicle is a convertible, the torso portion of the belt reels out from the base of the fixed right rear window and not midway up the B-pillar like most fixed roof vehicles. This positioning of the torso portion combined with the child's posture (i.e., being drowsy and leaning to the left away from the belt with his head most likely turned to the left) and the driver's braking and leftward steering, supports the theory that when the crash occurred the child's upper torso moved forward and rotated to the right (clockwise). The loading on the torso belt most likely caused the belt to slide down his right arm towards his elbow. This sliding would have enabled the child to move farther forward, to the right, and closer to the deploying air bag. In addition, because the child's head was turned to the left pre-impact, the right side of his face and head most likely took the brunt of the air bag's deployment which correlates with the majority of the child's brain and facial injuries occurring to his right side.

The vehicle inspection indicates that the right front air bag was contacted by his face approximately 19 centimeters (7.5 inches) inward from the right vertical seam. There was no evidence that the child contacted the air bag module's cover flaps. Subsequently, the child most likely hyperflexed his head and neck rearward after contacting the deploying air bag.

After the initial impact with vehicle #2 and the subsequent counterclockwise rotation, the child's torso most likely moved back and to the left towards his original seating position. At final rest, according to the mother/driver, she observed him sitting in his booster seat with his back against the booster seatback and with his head hanging down; he was unresponsive. According to the mother/driver, she lifted his head to check on him and observed what appeared to be blood coming from his nose and that both of his eyes were swollen shut. According to the mother/driver, she knew immediately he was hurt. She removed him from the car and laid him on the grass near the corner of the intersection.

---

<sup>6</sup> The VRTC performed a series of test runs of a child dummy seated in an identical child booster seat. Each run involved a test vehicle which braked from a speed of 48 k.p.h. (30 m.p.h.)--the case vehicle's estimated pre-crash speed. In some of the test runs, the test vehicle was steered leftward to simulate the case vehicle's pre-crash steering. The dummy was positioned in the booster seat with the torso portion of the vehicle's three-point belt crossing the dummy at various positions. Each run was videotaped to observe the child dummy's kinematic response to the braking and/or steering input. This contractor obtained a copy of the videotape from VRTC and selected six photographs--all runs are listed at the end of the **SELECTED PHOTOGRAPHS**.

AIR BAG SYSTEM<sup>7</sup>

	<u>DRIVER AIR BAG</u>	<u>PASSENGER AIR BAG</u>
Deployment Threshold: <sup>7</sup>	19 k.p.h. (12 m.p.h.) for a barrier impact; 24 k.p.h. (15 m.p.h.) for a car-to-car impact	19 k.p.h. (12 m.p.h.) for a barrier impact; 24 k.p.h. (15 m.p.h.) for a car-to-car impact
Air Bag Diameter (seam-to-seam, deflated):	Nondeployment	63 cm (24.8 in)
Number of Vent Holes:	Nondeployment	None, a 15 cm (5.9 in) singed area was noted along the lower right seam line
Vent Hole Diameter:	Nondeployment	Not applicable
Vent Hole Clock Positions:	Nondeployment	Not applicable
Generant Residue:	Nondeployment	Generant residue was found on the rearview mirror by the windshield

## DISCUSSION

As discussed above in the **DRIVER KINEMATICS** section, this vehicle has a "*Breed, independent, mechanical sensor*" for each front occupant air bag, and since the crash pulse was primarily to the front right corner, the right front air bag deployed as designed.

There is a question regarding whether the case vehicle sustained a 19 k.p.h. (12 m.p.h.) threshold Delta V as provided by the vehicle manufacturer's representatives present at the case vehicle's inspection. According to this contractor's reconstruction computations, the right front air bag deployed below their stated threshold.

According to National Transportation Safety Board (NTSB) personnel<sup>8</sup>, testing done on the child's sweatshirt (see **SELECTED PHOTOGRAPH #54**) confirmed the presence of blood, but unfortunately, the unidentified flakes on the left neckline, which appeared to be skin, could not be positively identified. It should be noted that no other evidence of contact was found in the case vehicle other than to the air bag itself. The child's primary injuries were to his brain with soft tissue injuries to his face, shoulders, and chest.

<sup>7</sup> Deployment thresholds were verbally provided by a Jaguar representative during our vehicle inspection.

<sup>8</sup> The NTSB was invited by the NHTSA to participate in this investigation since they have an on-going special study pertaining to air bag-deployment crashes involving children positioned in the right front seat.



**ACCIDENT COLLISION MEASUREMENT TABLE**



# ACCIDENT COLLISION MEASUREMENT TABLE

Primary Sampling Unit Number 10

Case Number—Stratum 9518

ACCIDENT COLLISION DIAGRAM		CRASH DATA
<p><u>Document the physical plant:</u></p> <ul style="list-style-type: none"> <li>all road/roadway delineation (e.g., curbs/edge lines, lane markings, median markings, pavement markings, parked vehicles, poles, signs, etc.)</li> <li>all traffic controls (e.g., speed limit)</li> <li>north arrow placed on diagram</li> <li>roadway surface type and condition of applicable roadways</li> <li>grade measurements for all applicable roadways and at location of rollover initiation</li> <li>roadway curvature</li> </ul>	<p><u>Document vehicle dynamics including:</u></p> <ul style="list-style-type: none"> <li>reference point and reference line relative to physical features present at the scene</li> <li>scaled documentation of all accident induced physical evidence</li> <li>scaled documentation of all roadside objects contacted</li> <li>scaled representations of the vehicle(s) at pre-impact, impact, and final rest based upon either:               <ul style="list-style-type: none"> <li>a) physical evidence, or</li> <li>b) reconstructed accident dynamics</li> </ul> </li> </ul>	<p>VEH. #1   VEH. #2   VEH. #3</p> <p>Heading Angle <u>100</u> <u>24</u> _____</p> <p>Surface Type <u>B.T.</u> <u>B.T.</u> _____</p> <p>Surface Condition <u>DRY</u> <u>DRY</u> _____</p> <p>Coefficient of Friction _____</p> <p>Grade (v/h) Measurement (between impact and final rest) <u>0</u> <u>+2%</u> _____</p> <p>Grade (v/h) Measurement (at location of rollover initiation) _____</p>

Reference Point: GAS MANHOLE COVER  
NE CORNER

Reference line: [REDACTED]  
[REDACTED] of intersection

Item	Distance and Direction from Reference Point	Distance and Direction from Reference Line
APEX	.6 m W	
RP	0	5.7 N
stop sign #1	.3 W	15.5 S
" " #2	10.4 W	15.5 S.
" " 3	11.3 W	8.3 N
CV FRP RF	.7 E	.7 S.
" " LF	0	.6 N
" " RR	1.7 W	1.8 S
CV FRP LR	2.2 W	.5 S.
V2 BEG LF scuff	3.7 W	2.8 S
V2 END LF scuff	2.5 W	2.2 S
CV Debris		



**Appendix A:**

**POLICE ACCIDENT REPORT**



COMMONWEALTH OF  
POLICE ACCIDENT REPORT

(XX) REFER TO OVERLAY SHEETS

REPORTABLE ☒ NON-REPORTABLE ☐

PENNDOT USE ONLY

POLICE INFORMATION				ACCIDENT LOCATION			
1. INCIDENT NUMBER				20. COUNTY			
2. AGENCY NAME				21. MUNICIPALITY			
3. STATION/ PRECINCT				22. ROUTE NO. OR STREET NAME			
4. PATROL ZONE				23. SPEED LIMIT			
5. INVESTIGATOR				24. TYPE HIGHWAY			
6. APPROVED BY				25. ACCESS CONTROL			
7. INVESTIGATION DATE				26. ROUTE NO. OR STREET NAME			
8. ARRIVAL TIME				27. SPEED LIMIT			
9. ACCIDENT DATE				28. TYPE HIGHWAY			
10. DAY OF WEEK				29. ACCESS CONTROL			
11. TIME OF DAY				30. CROSS STREET OR SEGMENT MARKER			
12. NUMBER OF UNITS				31. DIRECTION FROM SITE			
13. # KILLED				32. DISTANCE FROM SITE			
14. # INJURED				33. DISTANCE WAS			
15. PRIV. PROP. ACCIDENT				34. CONSTRUCTION ZONE			
16. DID VEHICLE HAVE TO BE REMOVED FROM THE SCENE?				35. TRAFFIC CONTROL DEVICE			
17. VEHICLE DAMAGE				36. LEGALLY PARKED?			
18. HAZARDOUS MATERIALS				37. REG. PLATE			
19. PENNDOT PROPERTY				38. STATE			
UNIT # 1				UNIT # 2			
39. PA TITLE OR OUT-OF-STATE VIN				39. PA TITLE OR OUT-OF-STATE VIN			
40. OWNER				40. OWNER			
41. OWNER ADDRESS				41. OWNER ADDRESS			
42. CITY, STATE & ZIPCODE				42. CITY, STATE & ZIPCODE			
43. YEAR				43. YEAR			
44. MAKE				44. MAKE			
45. MODEL - (NOT BODY TYPE)				45. MODEL - (NOT BODY TYPE)			
46. INS.				46. INS.			
47. BODY TYPE				47. BODY TYPE			
48. SPECIAL USAGE				48. SPECIAL USAGE			
49. VEHICLE OWNERSHIP				49. VEHICLE OWNERSHIP			
50. INITIAL IMPACT POINT				50. INITIAL IMPACT POINT			
51. VEHICLE STATUS				51. VEHICLE STATUS			
52. TRAVEL SPEED				52. TRAVEL SPEED			
53. VEHICLE GRADIENT				53. VEHICLE GRADIENT			
54. DRIVER PRESENCE				54. DRIVER PRESENCE			
55. DRIVER CONDITION				55. DRIVER CONDITION			
56. DRIVER NUMBER				56. DRIVER NUMBER			
57. STATE				57. STATE			
58. DRIVER NAME				58. DRIVER NAME			
59. DRIVER ADDRESS				59. DRIVER ADDRESS			
60. CITY, STATE & ZIPCODE				60. CITY, STATE & ZIPCODE			
61. SEX				61. SEX			
62. DATE OF BIRTH				62. DATE OF BIRTH			
63. PHONE				63. PHONE			
64. COMM. VEH. Y/N				64. COMM. VEH. Y/N			
65. DRIVER CLASS				65. DRIVER CLASS			
66. DRIVER SS#				66. DRIVER SS#			
67. CARRIER				67. CARRIER			
68. CARRIER ADDRESS				68. CARRIER ADDRESS			
69. CITY, STATE & ZIPCODE				69. CITY, STATE & ZIPCODE			
70. USDOT #				70. USDOT #			
71. ICC #				71. ICC #			
72. PUC #				72. PUC #			
73. VEH. CONFIG.				73. VEH. CONFIG.			
74. GVWR				74. GVWR			
75. NO. OF AXLES				75. NO. OF AXLES			
76. HAZARDOUS MATERIALS				76. HAZARDOUS MATERIALS			
77. RELEASE OF HAZ MAT				77. RELEASE OF HAZ MAT			

18A

XX REFER TO OVERLAY SHEETS

REPORTABLE ☒ NON-REPORTABLE ☐

PENNDOT USE ONLY

INCIDENT NUMBER	ACCIDENT DATE	COUNTY CODE	MUNICIPAL CODE
	95		

(82) PERSON INFORMATION - USE OVERLAY # 2 SHEET FOR CODES

[illegible]

## 87. NARRATIVE:

As a result of my investigation and the statement from the witness, it is my conclusion that Govt caused this accident by not properly obeying the stop sign, i.e.; he did not yield the right of way to Unit #2.

89. DESCRIBE VIOLATIONS		90. SECTION NUMBERS (ONLY IF CHARGED)		TC	NTC
UNIT 1				<input type="checkbox"/>	<input type="checkbox"/>
UNIT 2				<input type="checkbox"/>	<input type="checkbox"/>
91. PROBABLE USE	92. TYPE TEST	93. RESULTS <input type="checkbox"/> NO TEST <input type="checkbox"/> REFUSE <input type="checkbox"/> UNK 0. ____ %	91. PROBABLE USE	92. TYPE TEST	93. RESULTS <input type="checkbox"/> NO TEST <input type="checkbox"/> REFUSE <input type="checkbox"/> UNK 0. ____ %
UNIT 1			UNIT 2		
			94. INVESTIGATION COMPLETE ? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		

**Appendix B:**

**RECONSTRUCTION PROGRAM RESULTS:**

**CRASHPC  
(DAMAGE ONLY ALGORITHM)**

**CRASHPC  
(BARRIER OPTION--CASE VEHICLE AND VEHICLE #2)**

**EDCRASH  
(DAMAGE ONLY ALGORITHM)**

**TRC VECTOR ANALYSIS ITERATIONS**

*(Forms Not Available)*



**CRASHPC**

**(DAMAGE ONLY ALGORITHM)**

# SUMMARY OF CRASHPC RESULTS USING DAMAGE

Special Crash Investigation, TRC/IU Case 95-18, Task 9529

## SPEED CHANGE (DAMAGE)

### VEHICLE #1

TOTAL 14 KPH ( 9 MPH)  
 LONGITUDINAL -14 KPH ( -8 MPH)  
 LATITUDINAL -5 KPH ( -3 MPH)  
 PDOF ANGLE 20 DEGREES  
 ENERGY DISSIPATED = 31323 JOULES ( 23100 FT-LB)

### VEHICLE #2

TOTAL 13 KPH ( 8 MPH)  
 LONGITUDINAL -2 KPH ( -1 MPH)  
 LATITUDINAL 13 KPH ( 8 MPH)  
 PDOF ANGLE -80 DEGREES  
 ENERGY DISSIPATED = 5652 JOULES ( 4168 FT-LB)

## DAMAGE DATA

	VEHICLE #1	VEHICLE #2
SIZE CATEGORY	3	4
STIFFNESS CATEGORY	3	4
VEHICLE WEIGHT	1812 KGS ( 3995 LBS)	1946 KGS ( 4290 LBS)
CDC	01FZEW1	09LYEW2
PDOF ANGLE	20 DEGREES	-80 DEGREES
CRUSH LENGTH	160 CM. ( 63 IN.)	177 CM. ( 70 IN.)
C1	0 CM. ( 0 IN.)	0 CM. ( 0 IN.)
C2	1 CM. ( 0 IN.)	3 CM. ( 1 IN.)
C3	8 CM. ( 3 IN.)	8 CM. ( 3 IN.)
C4	16 CM. ( 6 IN.)	11 CM. ( 4 IN.)
C5	26 CM. ( 10 IN.)	5 CM. ( 2 IN.)
C6	33 CM. ( 13 IN.)	4 CM. ( 2 IN.)
D	33 CM. ( 13 IN.)	133 CM. ( 52 IN.)
D'	70 CM. ( 27 IN.)	144 CM. ( 57 IN.)

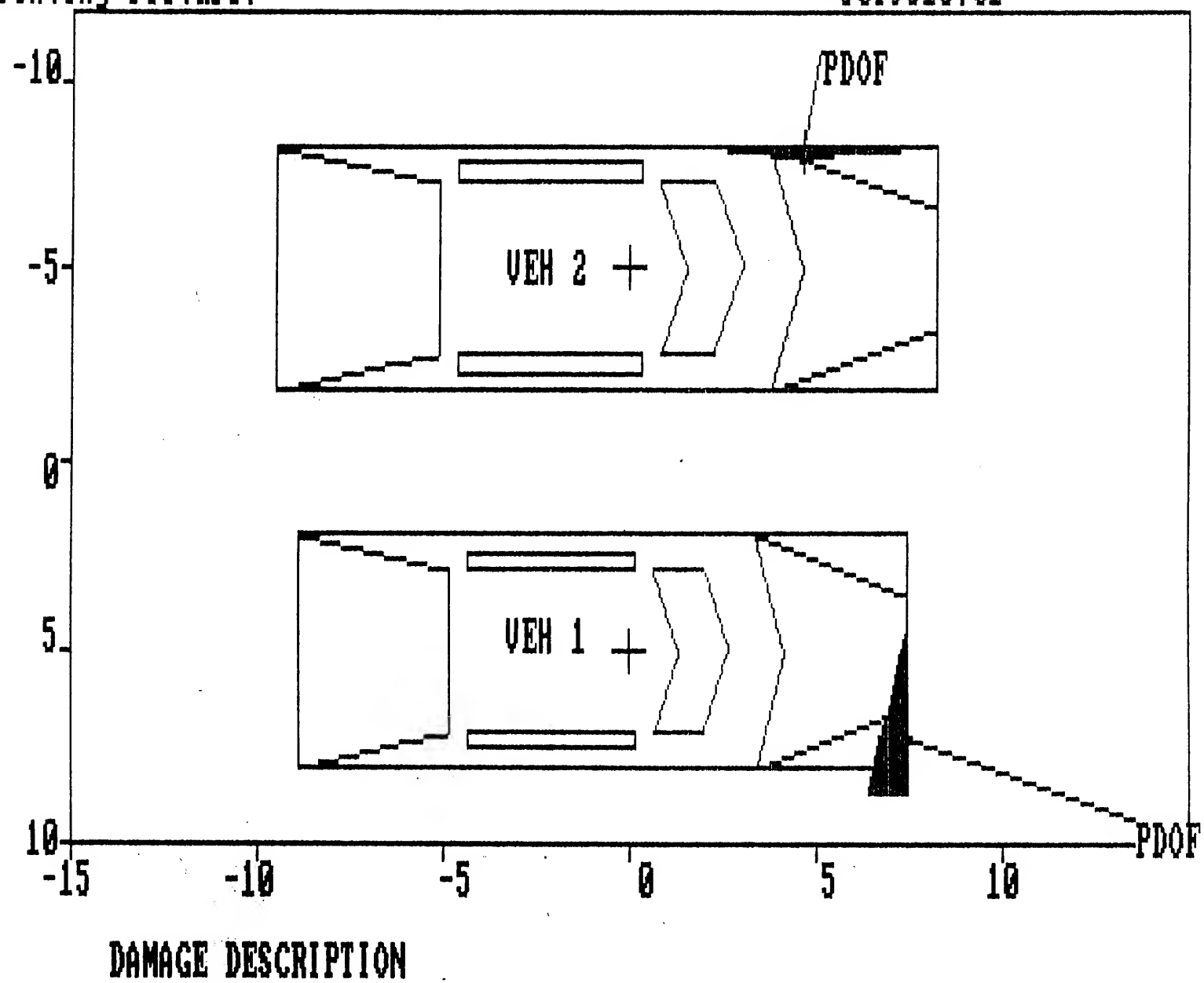
(\* INDICATES DEFAULT VALUE)

## DIMENSIONS AND INERTIAL PROPERTIES

	VEHICLE #1	VEHICLE #2
CG TO FRONT AXLE	130 CM. ( 51 IN.)	139 CM. ( 55 IN.)
CG TO REAR AXLE	141 CM. ( 56 IN.)	150 CM. ( 59 IN.)
TRACK	150 CM. ( 59 IN.)	157 CM. ( 62 IN.)
CG TO FRONT OF VEH	228 CM. ( 90 IN.)	251 CM. ( 99 IN.)
CG TO REAR OF VEH	-270 CM. (-106 IN.)	-290 CM. (-114 IN.)
CG TO SIDE OF VEH	92 CM. ( 36 IN.)	98 CM. ( 39 IN.)
MOMENT OF INERTIA	15661 KGS ( 34525 LBS)	18929 KGS ( 41730 LBS)
VEHICLE MASS	5 KGS ( 10 LBS)	5 KGS ( 11 LBS)

Printing Picture:

SCI9518.C1





U.S. Department of Transportation  
National Highway Traffic Safety  
Administration

## CRASHPC PROGRAM SUMMARY

(All Measurements In Metric)

NATIONAL ACCIDENT SAMPLING SYSTEM  
CRASHWORTHINESS DATA SYSTEM

### Identifying Title

10  
Primary  
Sampling Unit

9518  
Case No.-Stratum

01  
Accident Event  
Sequence No.

\_\_\_\_\_  
Date (Month, day, year) of Run

### CRASHPC Vehicle Identification

Vehicle 1 1995  
Vehicle 2 1994  
Year

Jaguar  
Cadillac  
Make

XJS  
Concours  
Model

01  
02  
NASS  
Veh. No.

## GENERAL INFORMATION

### VEHICLE 1

Size 3  
Weight 1726 + 81 + 5 = 1812 kg  
Curb Occupant(s) Cargo  
CDC 01 FZE W 1  
PDOF (-180 to +180) ⊕ 20°  
Stiffness 3

### VEHICLE 2

Size 4  
Weight 1807 + 129 + 0 = 1946 kg  
Curb Occupant(s) Cargo  
CDC 09 LYE W 2  
PDOF (-180 to +180) ⊕ 80°  
Stiffness 4

## SCENE INFORMATION

Rest and Impact Positions ☒ No, Go To Damage Information ☐ Yes

### VEHICLE 1

Rest Position X \_\_\_\_\_ m  
Y \_\_\_\_\_ m  
PSI \_\_\_\_\_ °  
Impact Position X \_\_\_\_\_ m  
Y \_\_\_\_\_ m  
PSI \_\_\_\_\_ °  
Slip Angle(-180 to +180) \_\_\_\_\_ °

### VEHICLE 2

Rest Position X \_\_\_\_\_ m  
Y \_\_\_\_\_ m  
PSI \_\_\_\_\_ °  
Impact Position X \_\_\_\_\_ m  
Y \_\_\_\_\_ m  
PSI \_\_\_\_\_ °  
Slip Angle (-180 to +180) \_\_\_\_\_ °

## VEHICLE MOTION

Sustained Contact ☐ No ☐ Yes

### VEHICLE 1

Vehicle Rotation ☐ No ☐ Yes  
Rotation Stop Before Rest ☐ No ☐ Yes  
End of Rotation Position X \_\_\_\_\_ m  
Y \_\_\_\_\_ m  
PSI \_\_\_\_\_ °  
Curved Path ☐ No ☐ Yes  
Point on Path X \_\_\_\_\_ m Y \_\_\_\_\_ m  
Rotation Direction ☐ None ☐ CW ☐ CCW  
Rotation > 360° ☐ No ☐ Yes

### VEHICLE 2

Vehicle Rotation ☐ No ☐ Yes  
Rotation Stop Before Rest ☐ No ☐ Yes  
End of Rotation Position X \_\_\_\_\_ m  
Y \_\_\_\_\_ m  
PSI \_\_\_\_\_ °  
Curved Path ☐ No ☐ Yes  
Point on Path X \_\_\_\_\_ m Y \_\_\_\_\_ m  
Rotation Direction ☐ None ☐ CW ☐ CCW  
Rotation > 360° ☐ No ☐ Yes

## FRICTION INFORMATION

Coefficient of Friction \_\_\_\_\_  
 Rolling Resistance Option \_\_\_\_\_

## Vehicle 1 Rolling Resistance

LF \_\_\_\_\_ RF \_\_\_\_\_  
 LR \_\_\_\_\_ RR \_\_\_\_\_

## Vehicle 2 Rolling Resistance

LF \_\_\_\_\_ RF \_\_\_\_\_  
 LR \_\_\_\_\_ RR \_\_\_\_\_

## TRAJECTORY INFORMATION

Trajectory Data [ ] No [ ] Yes

*If No, Go To Damage Information*

## Vehicle 1 Steer Angles

LF \_\_\_\_\_ ° RF \_\_\_\_\_ °  
 LR \_\_\_\_\_ ° RR \_\_\_\_\_ °

## Vehicle 2 Steer Angles

LF \_\_\_\_\_ ° RF \_\_\_\_\_ °  
 LR \_\_\_\_\_ ° RR \_\_\_\_\_ °

Terrain Boundary [ ] No [ ] Yes

## First Point

X \_\_\_\_\_ m Y \_\_\_\_\_ m

## Second Point

X \_\_\_\_\_ m Y \_\_\_\_\_ m

Secondary Coefficient of Friction \_\_\_\_\_

## DAMAGE INFORMATION

## VEHICLE 1

Damage Length L 160 cm

Crush Depths  
 C<sub>1</sub> \_\_\_\_\_ 0 cm  
 C<sub>2</sub> \_\_\_\_\_ 1 cm  
 C<sub>3</sub> \_\_\_\_\_ 8 cm  
 C<sub>4</sub> \_\_\_\_\_ 16 cm  
 C<sub>5</sub> \_\_\_\_\_ 26 cm  
 C<sub>6</sub> \_\_\_\_\_ 33 cm

Damage Offset D ⊕ 33 cm

## VEHICLE 2

Damage Length L 177 cm

Crush Depths  
 C<sub>1</sub> \_\_\_\_\_ 0 cm  
 C<sub>2</sub> \_\_\_\_\_ 3 cm  
 C<sub>3</sub> \_\_\_\_\_ 8 cm  
 C<sub>4</sub> \_\_\_\_\_ 11 cm  
 C<sub>5</sub> \_\_\_\_\_ 5 cm  
 C<sub>6</sub> \_\_\_\_\_ 4 cm

Damage Offset D ⊕ 133 cm

IF THIS COMMON IMPACT WAS WITH A MOTOR VEHICLE NOT IN TRANSPORT, FILL IN THE INFORMATION BELOW.

Model Year: \_\_\_\_\_

Make: \_\_\_\_\_

Model: \_\_\_\_\_

VIN: \_\_\_\_\_

The Weight, CDC, Scene Data and Damage Information for this vehicle should be recorded above.

Complete and ATTACH the appropriate vehicle damage sketch and dimensions to the Form.

**CRASHPC**

**(BARRIER OPTION—CASE VEHICLE AND VEHICLE #2)**



U.S. Department of Transportation  
National Highway Traffic Safety  
Administration

## CRASHPC PROGRAM SUMMARY

(All Measurements in Metric)

NATIONAL ACCIDENT SAMPLING SYSTEM  
CRASHWORTHINESS DATA SYSTEM

### Identifying Title

10  
Primary  
Sampling Unit

9518  
Case No.-Stratum

01  
Accident Event  
Sequence No.

\_\_\_\_\_  
Date (Month, day, year) of Run

### CRASHPC Vehicle Identification

Vehicle 1

1995

Jaguar

XJS

01

Vehicle 2

Year

Make

Model

NASS  
Veh. No.

### GENERAL INFORMATION

#### VEHICLE 1

Size

3

Weight

1726 + 81 + 5 = 1812 kg  
Curb Occupant(s) Cargo

CDC

01 F B E W 1

PDOF (-180 to +180)

+20°

Stiffness

3

#### VEHICLE 2

Size

4

Weight

\_\_\_\_ + \_\_\_\_ + \_\_\_\_ = \_\_\_\_ kg  
Curb Occupant(s) Cargo

CDC

PDOF (-180 to +180)

+ \_\_\_\_°

Stiffness

### SCENE INFORMATION

Rest and Impact Positions ☐ No, Go To Damage Information ☐ Yes

#### VEHICLE 1

Rest  
Position

X \_\_\_\_ m  
Y \_\_\_\_ m  
PSI \_\_\_\_°

Impact  
Position

X \_\_\_\_ m  
Y \_\_\_\_ m  
PSI \_\_\_\_°

Slip Angle(-180 to +180)

\_\_\_\_°

#### VEHICLE 2

Rest  
Position

X \_\_\_\_ m  
Y \_\_\_\_ m  
PSI \_\_\_\_°

Impact  
Position

X \_\_\_\_ m  
Y \_\_\_\_ m  
PSI \_\_\_\_°

Slip Angle (-180 to +180)

\_\_\_\_°

### VEHICLE MOTION

Sustained Contact ☒ No ☐ Yes

#### VEHICLE 1

Vehicle Rotation

☐ No ☐ Yes

Rotation Stop Before Rest

☐ No ☐ Yes

End of Rotation  
Position

X \_\_\_\_ m  
Y \_\_\_\_ m  
PSI \_\_\_\_°

Curved Path

☐ No ☐ Yes

Point on Path

X \_\_\_\_ m Y \_\_\_\_ m

Rotation Direction

☐ None ☐ CW ☐ CCW

Rotation >360°

☐ No ☐ Yes

#### VEHICLE 2

Vehicle Rotation

☐ No ☐ Yes

Rotation Stop Before Rest

☐ No ☐ Yes

End of Rotation  
Position

X \_\_\_\_ m  
Y \_\_\_\_ m  
PSI \_\_\_\_°

Curved Path

☐ No ☐ Yes

Point on Path

X \_\_\_\_ m Y \_\_\_\_ m

Rotation Direction

☐ None ☐ CW ☐ CCW

Rotation >360°

☐ No ☐ Yes

## FRICTION INFORMATION

Coefficient of Friction \_\_\_\_\_  
 Rolling Resistance Option \_\_\_\_\_

## Vehicle 1 Rolling Resistance

LF \_\_\_\_\_ RF \_\_\_\_\_  
 LR \_\_\_\_\_ RR \_\_\_\_\_

## Vehicle 2 Rolling Resistance

LF \_\_\_\_\_ RF \_\_\_\_\_  
 LR \_\_\_\_\_ RR \_\_\_\_\_

## TRAJECTORY INFORMATION

Trajectory Data ☐ No ☐ Yes*If No, Go To Damage Information*

## Vehicle 1 Steer Angles

LF \_\_\_\_\_ ° RF \_\_\_\_\_ °  
 LR \_\_\_\_\_ ° RR \_\_\_\_\_ °

## Vehicle 2 Steer Angles

LF \_\_\_\_\_ ° RF \_\_\_\_\_ °  
 LR \_\_\_\_\_ ° RR \_\_\_\_\_ °

Terrain Boundary ☐ No ☐ Yes

## First Point

X \_\_\_\_\_ m Y \_\_\_\_\_ m

## Second Point

X \_\_\_\_\_ m Y \_\_\_\_\_ m

Secondary Coefficient of Friction \_\_\_\_\_

## DAMAGE INFORMATION

## VEHICLE 1

Damage Length L 160 cm

Crush Depths  
 C<sub>1</sub> \_\_\_\_\_ 0 cm  
 C<sub>2</sub> \_\_\_\_\_ 1 cm  
 C<sub>3</sub> \_\_\_\_\_ 8 cm  
 C<sub>4</sub> \_\_\_\_\_ 16 cm  
 C<sub>5</sub> \_\_\_\_\_ 26 cm  
 C<sub>6</sub> \_\_\_\_\_ 33 cm

Damage Offset D ⊕ 33 cm

## VEHICLE 2

Damage Length L \_\_\_\_\_ cm

Crush Depths  
 C<sub>1</sub> \_\_\_\_\_ cm  
 C<sub>2</sub> \_\_\_\_\_ cm  
 C<sub>3</sub> \_\_\_\_\_ cm  
 C<sub>4</sub> \_\_\_\_\_ cm  
 C<sub>5</sub> \_\_\_\_\_ cm  
 C<sub>6</sub> \_\_\_\_\_ cm

Damage Offset D ± \_\_\_\_\_ cm

IF THIS COMMON IMPACT WAS WITH A MOTOR VEHICLE NOT IN TRANSPORT, FILL IN THE INFORMATION BELOW.

Model Year: \_\_\_\_\_

Make: \_\_\_\_\_

Model: \_\_\_\_\_

VIN: \_\_\_\_\_

The Weight, CDC, Scene Data and Damage Information  
 for this vehicle should be recorded above.

Complete and ATTACH the appropriate vehicle damage sketch and dimensions to the Form.



# SUMMARY OF CRASHPC RESULTS USING DAMAGE

Special Crash Investigations, TRC/IU Case 95-18, Task 9529

## SPEED CHANGE (DAMAGE)

VEHICLE #1  
 TOTAL 21 KPH ( 13 MPH)  
 LONGITUDINAL -20 KPH ( -12 MPH)  
 LATITUDINAL -7 KPH ( -4 MPH)  
 PDOF ANGLE 20 DEGREES  
 ENERGY DISSIPATED = 31323 JOULES ( 23100 FT-LB)

VEHICLE #2  
 TOTAL 0 KPH ( 0 MPH)  
 LONGITUDINAL 0 KPH ( 0 MPH)  
 LATITUDINAL 0 KPH ( 0 MPH)  
 PDOF ANGLE 0 DEGREES  
 ENERGY DISSIPATED = 0 JOULES ( 0 FT-LB)

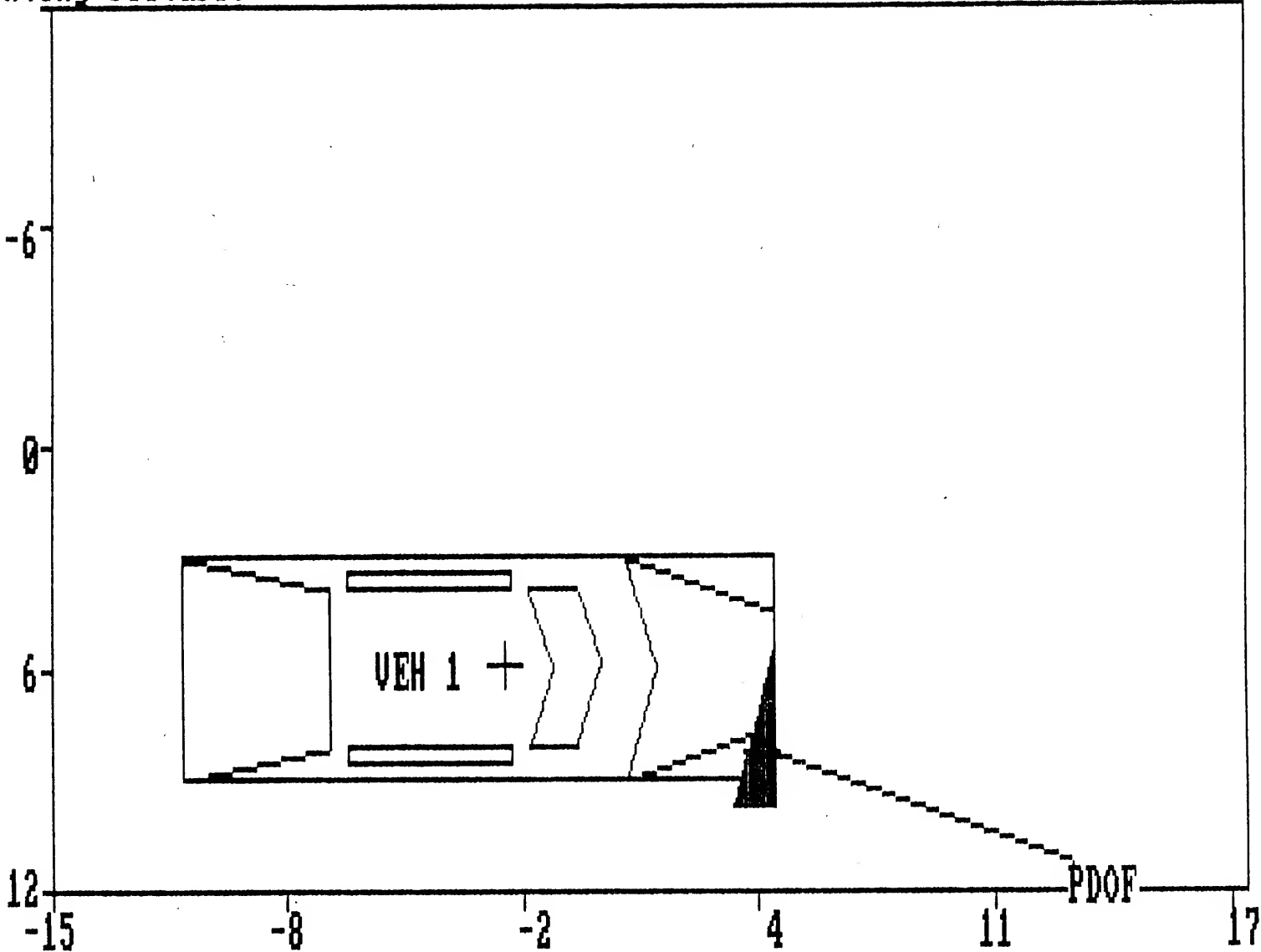
## DAMAGE DATA

	VEHICLE #1	VEHICLE #2
SIZE CATEGORY	3	11
STIFFNESS CATEGORY	3	0
VEHICLE WEIGHT	1812 KGS ( 3995 LBS)	***** KGS (2204586 LBS) *
CDC	01FZEW1	BARRIER
PDOF ANGLE	20 DEGREES	0 DEGREES *
CRUSH LENGTH	160 CM. ( 63 IN.)	0 CM. ( 0 IN.) *
C1	0 CM. ( 0 IN.)	0 CM. ( 0 IN.) *
C2	1 CM. ( 0 IN.)	0 CM. ( 0 IN.) *
C3	8 CM. ( 3 IN.)	0 CM. ( 0 IN.) *
C4	16 CM. ( 6 IN.)	0 CM. ( 0 IN.) *
C5	26 CM. ( 10 IN.)	0 CM. ( 0 IN.) *
C6	33 CM. ( 13 IN.)	0 CM. ( 0 IN.) *
D	33 CM. ( 13 IN.)	0 CM. ( 0 IN.) *
D'	70 CM. ( 27 IN.)	0 CM. ( 0 IN.) *

(\* INDICATES DEFAULT VALUE)

## DIMENSIONS AND INERTIAL PROPERTIES

	VEHICLE #1	VEHICLE #2
CG TO FRONT AXLE	130 CM. ( 51 IN.)	127 CM. ( 50 IN.)
CG TO REAR AXLE	141 CM. ( 56 IN.)	127 CM. ( 50 IN.)
TRACK	150 CM. ( 59 IN.)	127 CM. ( 50 IN.)
CG TO FRONT OF VEH	228 CM. ( 90 IN.)	127 CM. ( 50 IN.)
CG TO REAR OF VEH	-270 CM. (-106 IN.)	-127 CM. ( -50 IN.)
CG TO SIDE OF VEH	92 CM. ( 36 IN.)	127 CM. ( 50 IN.)
MOMENT OF INERTIA	15661 KGS ( 34525 LBS)	***** KGS (***** LBS)
VEHICLE MASS	5 KGS ( 10 LBS)	2600 KGS ( 5732 LBS)



DAMAGE DESCRIPTION



U.S. Department of Transportation  
National Highway Traffic Safety  
Administration

# CRASHPC PROGRAM SUMMARY

(All Measurements In Metric)

NATIONAL ACCIDENT SAMPLING SYSTEM  
CRASHWORTHINESS DATA SYSTEM

## Identifying Title

10  
Primary  
Sampling Unit

9518  
Case No.-Stratum

01  
Accident Event  
Sequence No.

\_\_\_\_\_  
Date (Month, day, year) of Run

## CRASHPC Vehicle Identification

Vehicle 1

Vehicle 2

1994  
Year

Cadillac  
Make

Concours  
Model

02  
NASS  
Veh. No.

## GENERAL INFORMATION

VEHICLE 1		VEHICLE 2	
Size	<u>11</u>	Size	<u>4</u>
Weight		Weight	
Curb	+	Curb	+
Occupant(s)	+	Occupant(s)	+
Cargo	=	Cargo	=
	kg		kg
CDC		CDC	
PDOF (-180 to +180)	+	PDOF (-180 to +180)	+
Stiffness		Stiffness	

## SCENE INFORMATION

Rest and Impact Positions ☒ No, Go To Damage Information ☐ Yes

VEHICLE 1		VEHICLE 2	
Rest Position	X	Rest Position	X
	Y		Y
	PSI		PSI
Impact Position	X	Impact Position	X
	Y		Y
	PSI		PSI
Slip Angle(-180 to +180)		Slip Angle (-180 to +180)	

## VEHICLE MOTION

Sustained Contact ☐ No ☐ Yes

VEHICLE 1		VEHICLE 2	
Vehicle Rotation	<input type="checkbox"/> No <input type="checkbox"/> Yes	Vehicle Rotation	<input type="checkbox"/> No <input type="checkbox"/> Yes
Rotation Stop Before Rest	<input type="checkbox"/> No <input type="checkbox"/> Yes	Rotation Stop Before Rest	<input type="checkbox"/> No <input type="checkbox"/> Yes
End of Rotation Position	X	End of Rotation Position	X
	Y		Y
	PSI		PSI
Curved Path	<input type="checkbox"/> No <input type="checkbox"/> Yes	Curved Path	<input type="checkbox"/> No <input type="checkbox"/> Yes
Point on Path	X	Point on Path	X
	Y		Y
Rotation Direction	<input type="checkbox"/> None <input type="checkbox"/> CW <input type="checkbox"/> CCW	Rotation Direction	<input type="checkbox"/> None <input type="checkbox"/> CW <input type="checkbox"/> CCW
Rotation > 360°	<input type="checkbox"/> No <input type="checkbox"/> Yes	Rotation > 360°	<input type="checkbox"/> No <input type="checkbox"/> Yes

## FRICTION INFORMATION

Coefficient of Friction \_\_\_\_\_

Rolling Resistance Option \_\_\_\_\_

## Vehicle 1 Rolling Resistance

LF \_\_\_\_\_ RF \_\_\_\_\_

LR \_\_\_\_\_ RR \_\_\_\_\_

## Vehicle 2 Rolling Resistance

LF \_\_\_\_\_ RF \_\_\_\_\_

LR \_\_\_\_\_ RR \_\_\_\_\_

## TRAJECTORY INFORMATION

Trajectory Data [ ] No [ ] Yes

*If No, Go To Damage Information*

## Vehicle 1 Steer Angles

LF \_\_\_\_\_ ° RF \_\_\_\_\_ °

LR \_\_\_\_\_ ° RR \_\_\_\_\_ °

## Vehicle 2 Steer Angles

LF \_\_\_\_\_ ° RF \_\_\_\_\_ °

LR \_\_\_\_\_ ° RR \_\_\_\_\_ °

Terrain Boundary [ ] No [ ] Yes

## First Point

X \_\_\_\_\_ m Y \_\_\_\_\_ m

## Second Point

X \_\_\_\_\_ m Y \_\_\_\_\_ m

Secondary Coefficient of Friction \_\_\_\_\_

## DAMAGE INFORMATION

## VEHICLE 1

Damage Length L \_\_\_\_\_ cm

Crush Depths C<sub>1</sub> \_\_\_\_\_ cmC<sub>2</sub> \_\_\_\_\_ cmC<sub>3</sub> \_\_\_\_\_ cmC<sub>4</sub> \_\_\_\_\_ cmC<sub>5</sub> \_\_\_\_\_ cmC<sub>6</sub> \_\_\_\_\_ cm

Damage Offset D ± \_\_\_\_\_ cm

## VEHICLE 2

Damage Length L 177 cmCrush Depths C<sub>1</sub> 0 cmC<sub>2</sub> 3 cmC<sub>3</sub> 8 cmC<sub>4</sub> 11 cmC<sub>5</sub> 3 cmC<sub>6</sub> 4 cmDamage Offset D ⊕ 133 cm

IF THIS COMMON IMPACT WAS WITH A MOTOR VEHICLE NOT IN TRANSPORT, FILL IN THE INFORMATION BELOW.

Model Year: \_\_\_\_\_

Make: \_\_\_\_\_

Model: \_\_\_\_\_

VIN: \_\_\_\_\_

The Weight, CDC, Scene Data and Damage Information for this vehicle should be recorded above.

Complete and ATTACH the appropriate vehicle damage sketch and dimensions to the Form.

# SUMMARY OF CRASHPC RESULTS USING DAMAGE

Special Crash Investigations, TRC/IU Case 95-18, Task 9529

## SPEED CHANGE (DAMAGE)

VEHICLE #1  
 TOTAL 0 KPH ( 0 MPH)  
 LONGITUDINAL 0 KPH ( 0 MPH)  
 LATITUDINAL 0 KPH ( 0 MPH)  
 PDOF ANGLE 0 DEGREES  
 ENERGY DISSIPATED = 0 JOULES ( 0 FT-LB)

VEHICLE #2  
 TOTAL 7 KPH ( 4 MPH)  
 LONGITUDINAL -1 KPH ( -1 MPH)  
 LATITUDINAL 7 KPH ( 4 MPH)  
 PDOF ANGLE -80 DEGREES  
 ENERGY DISSIPATED = 5652 JOULES ( 4168 FT-LB)

## DAMAGE DATA

	VEHICLE #1	VEHICLE #2
SIZE CATEGORY	11	4
STIFFNESS CATEGORY	0	4
VEHICLE WEIGHT	***** KGS (2204586 LBS) *	1946 KGS ( 4290 LBS)
CDC	BARRIER	09LYEW2
PDOF ANGLE	0 DEGREES *	-80 DEGREES
CRUSH LENGTH	0 CM. ( 0 IN.) *	177 CM. ( 70 IN.)
C1	0 CM. ( 0 IN.) *	0 CM. ( 0 IN.)
C2	0 CM. ( 0 IN.) *	3 CM. ( 1 IN.)
C3	0 CM. ( 0 IN.) *	8 CM. ( 3 IN.)
C4	0 CM. ( 0 IN.) *	11 CM. ( 4 IN.)
C5	0 CM. ( 0 IN.) *	5 CM. ( 2 IN.)
C6	0 CM. ( 0 IN.) *	4 CM. ( 2 IN.)
D	0 CM. ( 0 IN.) *	133 CM. ( 52 IN.)
D'	0 CM. ( 0 IN.) *	144 CM. ( 57 IN.)

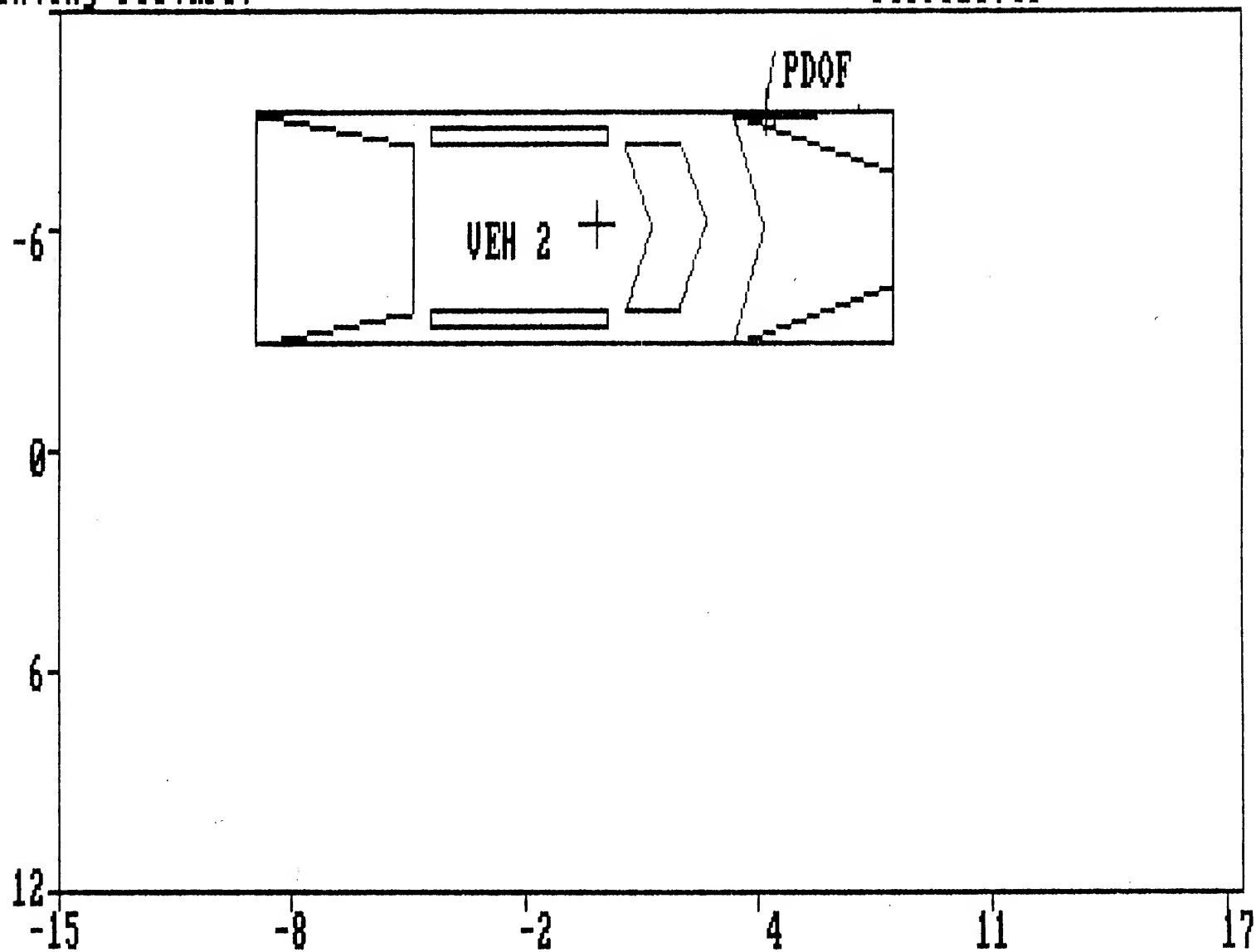
(\* INDICATES DEFAULT VALUE)

## DIMENSIONS AND INERTIAL PROPERTIES

	VEHICLE #1	VEHICLE #2
CG TO FRONT AXLE	127 CM. ( 50 IN.)	139 CM. ( 55 IN.)
CG TO REAR AXLE	127 CM. ( 50 IN.)	150 CM. ( 59 IN.)
TRACK	127 CM. ( 50 IN.)	157 CM. ( 62 IN.)
CG TO FRONT OF VEH	127 CM. ( 50 IN.)	251 CM. ( 99 IN.)
CG TO REAR OF VEH	-127 CM. ( -50 IN.)	-290 CM. (-114 IN.)
CG TO SIDE OF VEH	127 CM. ( 50 IN.)	98 CM. ( 39 IN.)
MOMENT OF INERTIA	***** KGS (***** LBS)	18929 KGS ( 41730 LBS)
VEHICLE MASS	2600 KGS ( 5732 LBS)	5 KGS ( 11 LBS)

Printing Picture:

SCI9518.C3



DAMAGE DESCRIPTION

## EDCRASH

### (DAMAGE ONLY ALGORITHM)

This contractor completed five separate EDCRASH runs in order to demonstrate the difficulty of achieving a satisfactory resultant. Because the correct A and B stiffness coefficients for the case vehicle are not available, the default A and B values for the case vehicle's size had to be used in the first four runs.

- o The first run used the resultant C-measurements for both vehicles and the default A and B values for both vehicles.
- o The second run used the default A and B values for both vehicles together with the raw C-measurement values for vehicle #2 (i.e., no freespace was subtracted).
- o The third run used the resultant C-measurements for both vehicles and increased the default "A" value for vehicle #2 by 100 lbs/in (17.86 kg/cm).
- o The fourth run used the resultant C-measurements for both vehicles but changed vehicle #2's default side A and B values to equal vehicle #2's known front A and B stiffness coefficients.
- o The fifth and final run used the resultant C-measurements but raised the case vehicle's A and B stiffness coefficients as well as using vehicle #2's front stiffness coefficients on the side. This run produced the highest Delta V possible for the case vehicle in this specific crash.

The five runs indicate that the case vehicle's Total Delta is respectively:

Run	First	Second	Third	Fourth	Fifth
K.P.H.	14.3	15.6	15.2	15.7	16.5
M.P.H.	8.9	9.7	9.4	9.8	10.3

These EDCRASH runs indicate that the Delta-V calculated for the case vehicle is well below the reported deployment threshold. According to the Jaguar technicians that were present during the latter part of the vehicle inspection, the deployment threshold for the case vehicle (Jaguar) is 12 m.p.h. for an impact with a barrier and 15 m.p.h. for an impact with another vehicle.

Another valid theory for the case vehicle's low Delta V is that there is just not enough crash test data yet available so that existing computer reconstruction programs can adjust for every impact configuration (e.g., off-set frontal impacts, side impacts in the wheel assembly area, etc.). It should be noted that the accuracy of low speed linear mass spring computer modeling has been questioned in recent SAE accident reconstruction literature (i.e., the Delta V is underestimated in low speed crashes).

MESSAGES:

*RUN 1*

WARNING: Damage-based estimates for Magnitude of Principal Force grossly violate Newton's third law of motion. Review the output to determine required corrections to Damage Data and adjust as necessary.

The Magnitudes of Principal Force for Vehicles 1 and 2 should be approximately equal. NOTE: The difference may be due to bumper over-ride, and the default or user-entered crush stiffness coefficients are too high. Review and adjust the damage data as required.

VEHICLE # 1

IMPACT SPEED km/h		SPEED CHANGE km/h			BASIS FOR RESULTS
FWD	LAT	TOTAL	LONG.	LATERAL	
N/A	N/A	N/A	N/A	N/A	SPINOUT TRAJECTORIES AND CONSERVATION OF LINEAR MOMENTUM
N/A	N/A	N/A	N/A	N/A	SPINOUT TRAJECTORIES AND DAMAGE
		14.3	-13.4	-4.9	DAMAGE DATA ONLY

VEHICLE # 2

IMPACT SPEED km/h		SPEED CHANGE km/h			BASIS FOR RESULTS
FWD	LAT	TOTAL	LONG.	LATERAL	
N/A	N/A	N/A	N/A	N/A	SPINOUT TRAJECTORIES AND CONSERVATION OF LINEAR MOMENTUM
N/A	N/A	N/A	N/A	N/A	SPINOUT TRAJECTORIES AND DAMAGE
		13.3	-2.3	13.1	DAMAGE DATA ONLY



SUMMARY OF DAMAGE DATA  
(NOTE: '\*\*\*' indicates default value)

	Vehicle #1	Vehicle #2
CLASS / STIFFNESS CATEGORIES	3 / 3	4 / 4
WEIGHT	1812.0 kg	1946.0 kg
CDC	01FZEW1	09LYEW2
DAMAGE WIDTH	160.0 cm	177.0 cm
CRUSH DEPTH 1	0.0 cm	0.0 cm
CRUSH DEPTH 2	0.5 cm	3.0 cm
CRUSH DEPTH 3	7.5 cm	7.7 cm
CRUSH DEPTH 4	15.5 cm	10.5 cm
CRUSH DEPTH 5	26.0 cm	5.0 cm
CRUSH DEPTH 6	33.0 cm	3.5 cm
DAMAGE MIDPOINT OFFSET	33.0 cm	133.0 cm
DAMAGE ENERGY	30832.0 Joules	5455.1 Joules
MAGNITUDE OF PRINCIPAL FORCE	181242.5 N	79910.7 N
DIRECTION OF PRINCIPAL FORCE	20.0 deg	-80.0 deg
MOMENT ARM OF PRINCIPAL FORCE	-7.7 cm	124.9 cm
DAMAGE CENTROID	70.8 cm	143.4 cm

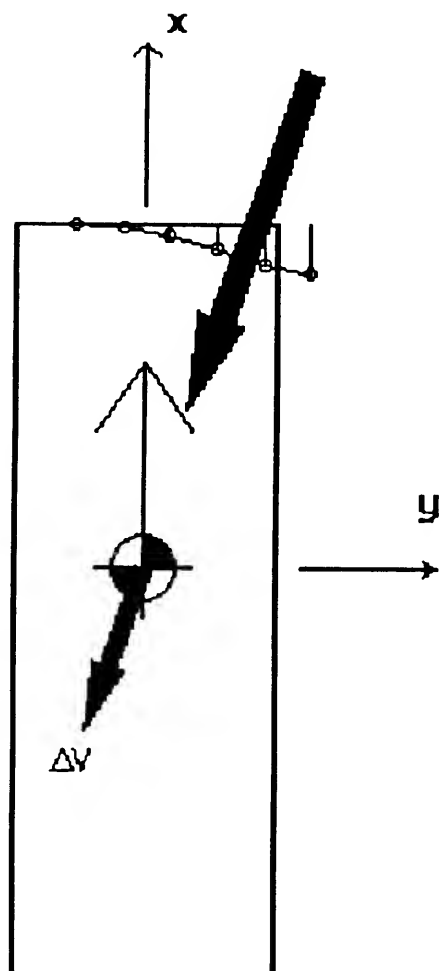
DIMENSIONAL, INERTIAL AND CRUSH STIFFNESS PROPERTIES  
(NOTE: '\*\*\*' indicates default value)

	Vehicle #1		Vehicle #2	
CG TO FRONT AXLE	130.3 cm	**	138.9 cm	**
CG TO REAR AXLE	141.0 cm	**	150.4 cm	**
TRACKWIDTH	149.6 cm	**	154.7 cm	**
YAW MOMENT OF INERTIA	3882.9 kg-m <sup>2</sup>	**	4693.2 kg-m <sup>2</sup>	**
MASS	1809.0 kg		1942.8 kg	
BODY LENGTH FROM CG TO FRONT	228.1 cm	**	251.0 cm	**
BODY LENGTH FROM CG TO REAR	-270.3 cm	**	-289.6 cm	**
BODY OVERALL WIDTH	176.3 cm		194.6 cm	

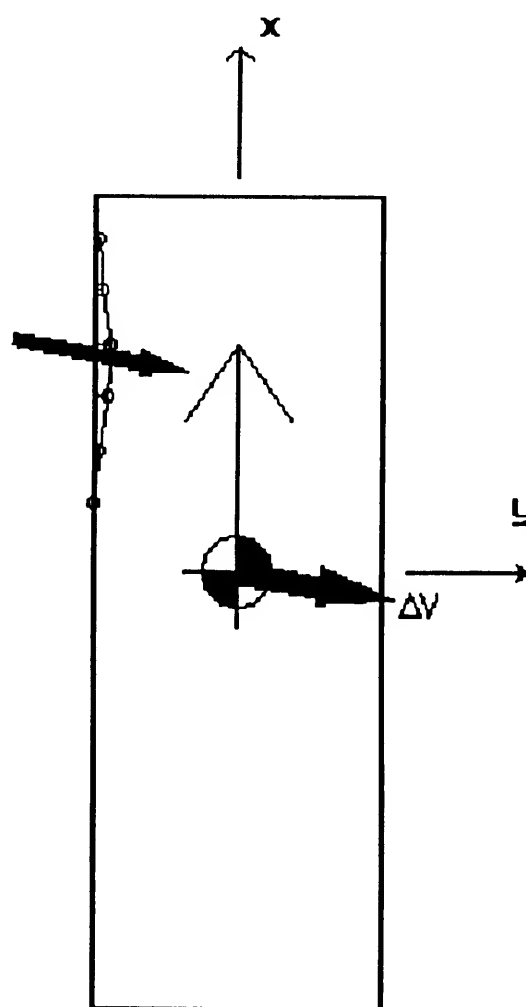
CRUSH STIFFNESSES:	A	B	A	B
	lb/in	lb/in <sup>2</sup>	lb/in	lb/in <sup>2</sup>
	317.4 **	55.9 **	143.0 **	50.4 **

Vehicle No. 1



CDC/PDOF: 01FZEW1 20.0 deg  
Max Impact Force: 181243 N

Vehicle No. 2

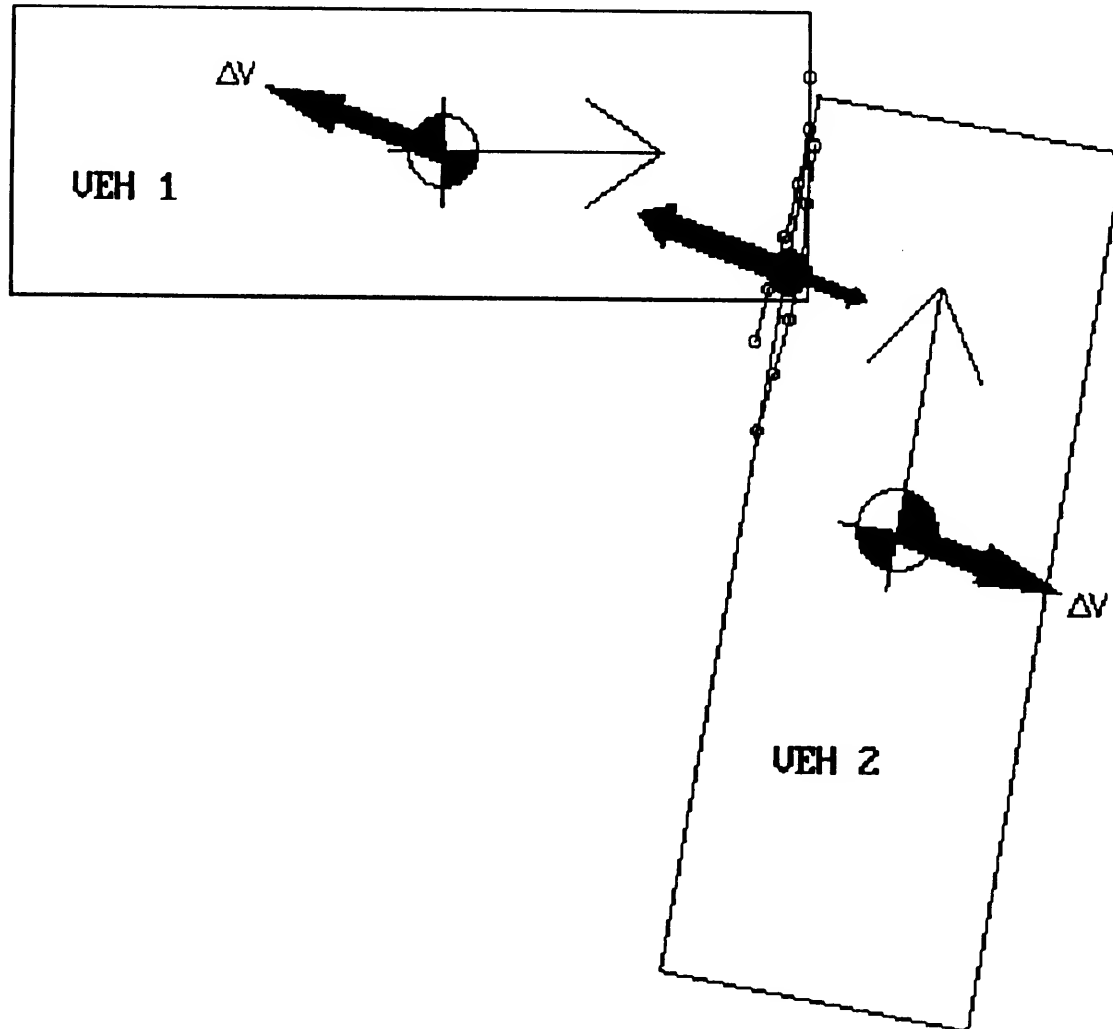


CDC/PDOF: 09LYEW2 -80.0 deg  
Max Impact Force: 79911 N



EDCRASH  
Damage Profiles

	Veh #1	Veh #2
Delta-U (km/h):		
X	-13.4	-2.3
Y	-4.9	13.1
Tot	14.3	13.3
Crush Data (cm):		
W	160.0	177.0
D	33.0	133.0
C1	0.0	0.0
C2	0.5	3.0
C3	7.5	7.7
C4	15.5	10.5
C5	26.0	5.0
C6	33.0	3.5



EDCRASH  
At Impact

	Ueh #1	Ueh #2
Delta-U (km/h)		
(BASIS: Damage)		
X	-13.4	-2.3
Y	-4.9	13.1
Tot	14.3	13.3
PDOF	20.0	-80.0

UNITS: km/h,m,deg

(NO SCENE DATA)

S U M M A R Y      O F      E D C R A S H      R E S U L T S

Lic. User: NHTSA #8      S/N: 0266-8      Version: 4.61

Date: [REDACTED] 1995      9518

MESSAGES:

RUN 2

NO MESSAGES

VEHICLE # 1

IMPACT SPEED km/h		SPEED CHANGE km/h			BASIS FOR RESULTS
FWD	LAT	TOTAL	LONG.	LATERAL	
N/A	N/A	N/A	N/A	N/A	SPINOUT TRAJECTORIES AND CONSERVATION OF LINEAR MOMENTUM
N/A	N/A	N/A	N/A	N/A	SPINOUT TRAJECTORIES AND DAMAGE
		15.6	-14.6	-5.3	DAMAGE DATA ONLY

VEHICLE # 2

IMPACT SPEED km/h		SPEED CHANGE km/h			BASIS FOR RESULTS
FWD	LAT	TOTAL	LONG.	LATERAL	
N/A	N/A	N/A	N/A	N/A	SPINOUT TRAJECTORIES AND CONSERVATION OF LINEAR MOMENTUM
N/A	N/A	N/A	N/A	N/A	SPINOUT TRAJECTORIES AND DAMAGE
		14.5	-2.5	14.3	DAMAGE DATA ONLY

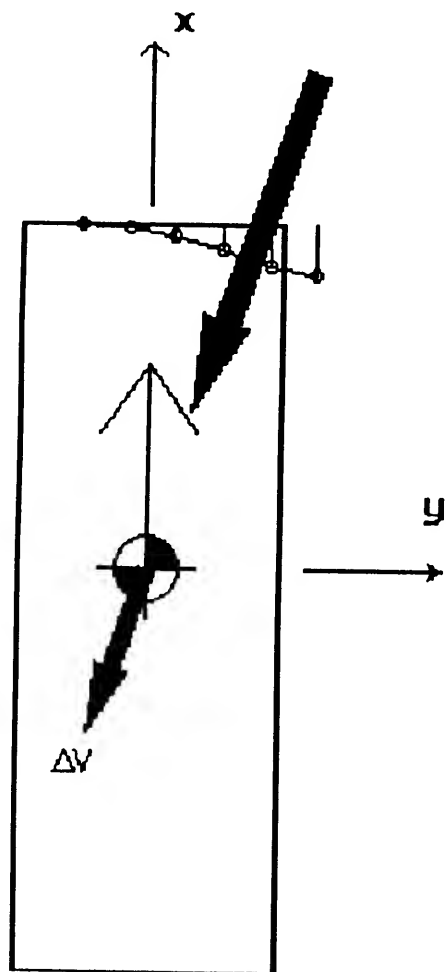
SUMMARY OF DAMAGE DATA  
(NOTE: '\*\*' indicates default value)

	Vehicle #1	Vehicle #2
CLASS / STIFFNESS CATEGORIES	3 / 3	4 / 4
WEIGHT	1812.0 kg	1946.0 kg
CDC	01fzew1	09LYEW2
DAMAGE WIDTH	160.0 cm	177.0 cm
CRUSH DEPTH 1	0.0 cm	0.0 cm
CRUSH DEPTH 2	0.5 cm	5.0 cm
CRUSH DEPTH 3	7.5 cm	14.5 cm
CRUSH DEPTH 4	15.5 cm	18.5 cm
CRUSH DEPTH 5	26.0 cm	18.0 cm
CRUSH DEPTH 6	33.0 cm	18.5 cm
DAMAGE MIDPOINT OFFSET	33.0 cm	133.0 cm
DAMAGE ENERGY	30832.0 Joules	14272.3 Joules
MAGNITUDE OF PRINCIPAL FORCE	181242.5 N	126495.4 N
DIRECTION OF PRINCIPAL FORCE	20.0 deg	-80.0 deg
MOMENT ARM OF PRINCIPAL FORCE	-7.7 cm	137.7 cm
DAMAGE CENTROID	70.8 cm	155.5 cm

DIMENSIONAL, INERTIAL AND CRUSH STIFFNESS PROPERTIES  
(NOTE: '\*\*' indicates default value)

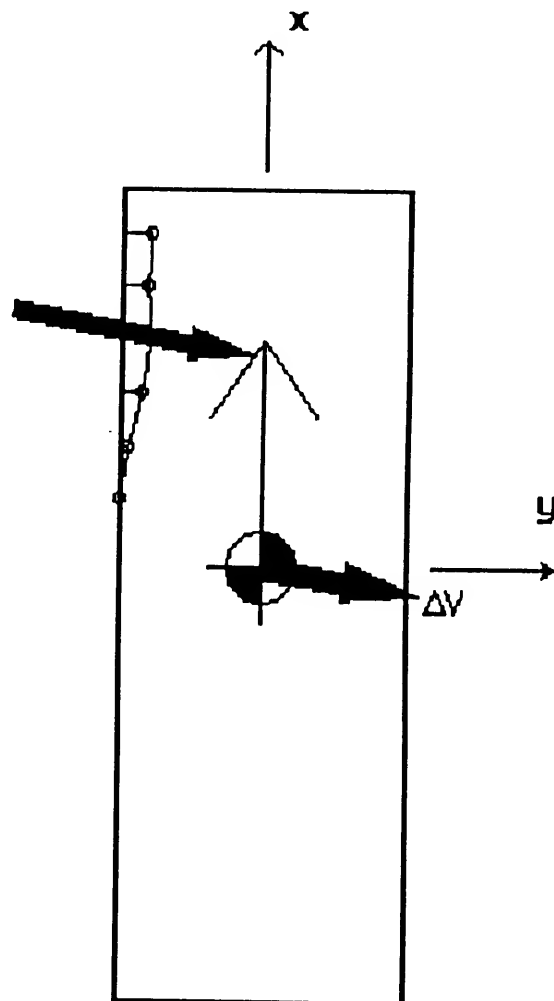
	Vehicle #1		Vehicle #2	
CG TO FRONT AXLE	130.3 cm	**	138.9 cm	**
CG TO REAR AXLE	141.0 cm	**	150.4 cm	**
TRACKWIDTH	149.6 cm	**	154.7 cm	
YAW MOMENT OF INERTIA	3882.9 kg-m <sup>2</sup>	**	4693.2 kg-m <sup>2</sup>	**
MASS	1809.0 kg		1942.8 kg	
BODY LENGTH FROM CG TO FRONT	228.1 cm	**	251.0 cm	**
BODY LENGTH FROM CG TO REAR	-270.3 cm	**	-289.6 cm	**
BODY OVERALL WIDTH	176.3 cm		194.6 cm	
CRUSH STIFFNESSES:				
	A	B	A	B
	lb/in	lb/in <sup>2</sup>	lb/in	lb/in <sup>2</sup>
	317.4 **	55.9 **	143.0 **	50.4 **

Vehicle No. 1



CDC/PDOF: 01fzew1 20.0 deg  
Max Impact Force: 181243 N

Vehicle No. 2



CDC/PDOF: 09LYEW2 -80.0 deg  
Max Impact Force: 126495 N

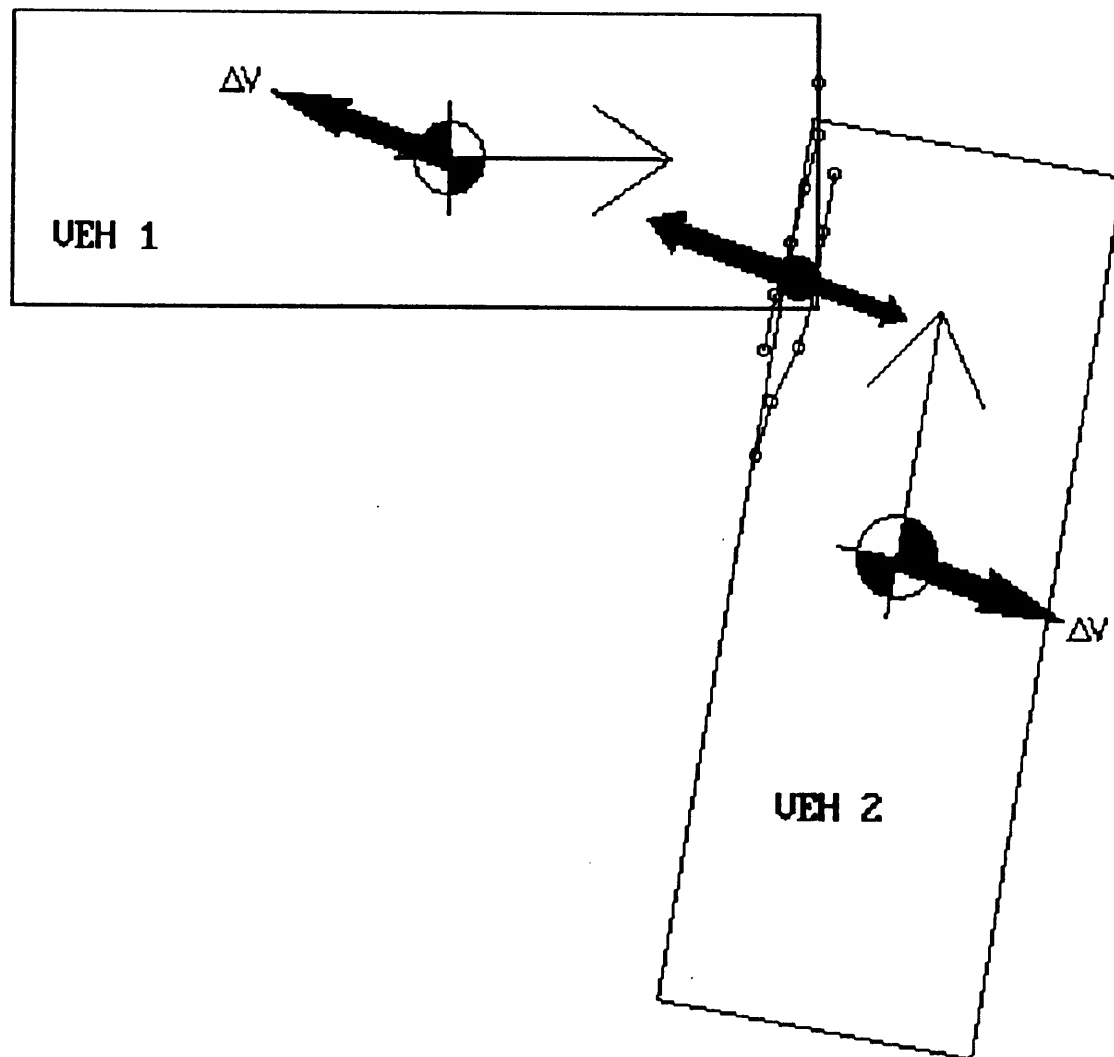


EDOCRASH  
Damage Profiles

	Veh #1	Veh #2
Delta-U (km/h):		
X	-14.6	-2.5
Y	-5.3	14.3
Tot	15.6	14.5

	Crush Data (cm):	
W	160.0	177.0
D	33.0	133.0
C1	0.0	0.0
C2	0.5	5.0
C3	7.5	14.5
C4	15.5	18.5
C5	26.0	18.0
C6	33.0	18.5

33A



EDCRASH  
At Impact

	Ueh #1	Ueh #2
Delta-U (km/h)		
(BASIS: Damage)		
X	-14.6	-2.5
Y	-5.3	14.3
Tot	15.6	14.5
PDOF	20.0	-80.0

UNITS: km/h,m,deg

(NO SCENE DATA)

S U M M A R Y      O F      E D C R A S H      R E S U L T S

Lic. User: NHTSA #8      S/N: 0266-8      Version: 4.61

Date: [REDACTED] 1995      9518

MESSAGES:

*Run 3*

NO MESSAGES

VEHICLE # 1

IMPACT SPEED km/h		SPEED CHANGE km/h			BASIS FOR RESULTS
FWD	LAT	TOTAL	LONG.	LATERAL	
N/A	N/A	N/A	N/A	N/A	SPINOUT TRAJECTORIES AND CONSERVATION OF LINEAR MOMENTUM
N/A	N/A	N/A	N/A	N/A	SPINOUT TRAJECTORIES AND DAMAGE
		15.2	-14.3	-5.2	DAMAGE DATA ONLY

VEHICLE # 2

IMPACT SPEED km/h		SPEED CHANGE km/h			BASIS FOR RESULTS
FWD	LAT	TOTAL	LONG.	LATERAL	
N/A	N/A	N/A	N/A	N/A	SPINOUT TRAJECTORIES AND CONSERVATION OF LINEAR MOMENTUM
N/A	N/A	N/A	N/A	N/A	SPINOUT TRAJECTORIES AND DAMAGE
		14.2	-2.5	14.0	DAMAGE DATA ONLY



SUMMARY OF DAMAGE DATA  
(NOTE: '\*\*\*' indicates default value)

	Vehicle #1	Vehicle #2
CLASS / STIFFNESS CATEGORIES	3 / 3	4 / 4
WEIGHT	1812.0 kg	1946.0 kg
CDC	01FZEW1	09LYEW2
DAMAGE WIDTH	160.0 cm	177.0 cm
CRUSH DEPTH 1	0.0 cm	0.0 cm
CRUSH DEPTH 2	0.5 cm	3.0 cm
CRUSH DEPTH 3	7.5 cm	7.7 cm
CRUSH DEPTH 4	15.5 cm	10.5 cm
CRUSH DEPTH 5	26.0 cm	5.0 cm
CRUSH DEPTH 6	33.0 cm	3.5 cm
DAMAGE MIDPOINT OFFSET	33.0 cm	133.0 cm
DAMAGE ENERGY	30832.0 Joules	10349.7 Joules
MAGNITUDE OF PRINCIPAL FORCE	181242.5 N	111381.5 N
DIRECTION OF PRINCIPAL FORCE	20.0 deg	-80.0 deg
MOMENT ARM OF PRINCIPAL FORCE	-7.7 cm	125.4 cm
DAMAGE CENTROID	70.8 cm	143.9 cm

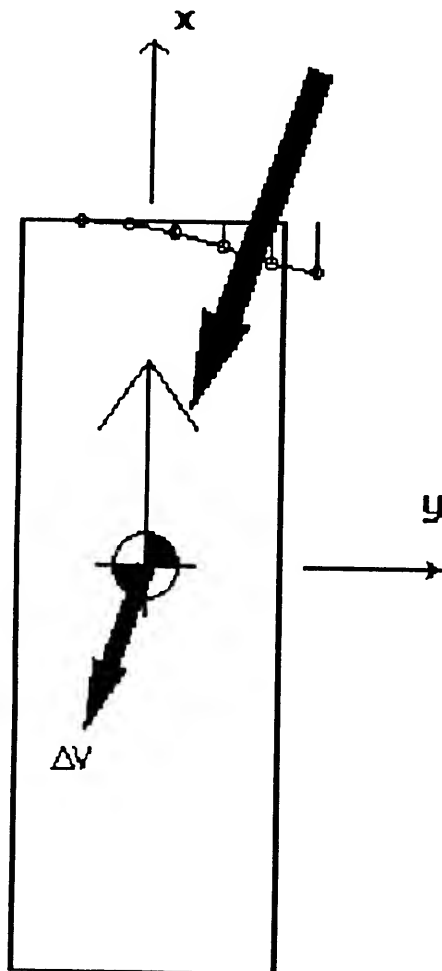
DIMENSIONAL, INERTIAL AND CRUSH STIFFNESS PROPERTIES  
(NOTE: '\*\*\*' indicates default value)

	Vehicle #1		Vehicle #2	
CG TO FRONT AXLE	130.3 cm	**	138.9 cm	**
CG TO REAR AXLE	141.0 cm	**	150.4 cm	**
TRACKWIDTH	149.6 cm	**	154.7 cm	**
YAW MOMENT OF INERTIA	3882.9 kg-m <sup>2</sup>	**	4693.2 kg-m <sup>2</sup>	**
MASS	1809.0 kg		1942.8 kg	
BODY LENGTH FROM CG TO FRONT	228.1 cm	**	251.0 cm	**
BODY LENGTH FROM CG TO REAR	-270.3 cm	**	-289.6 cm	**
BODY OVERALL WIDTH	176.3 cm		194.6 cm	

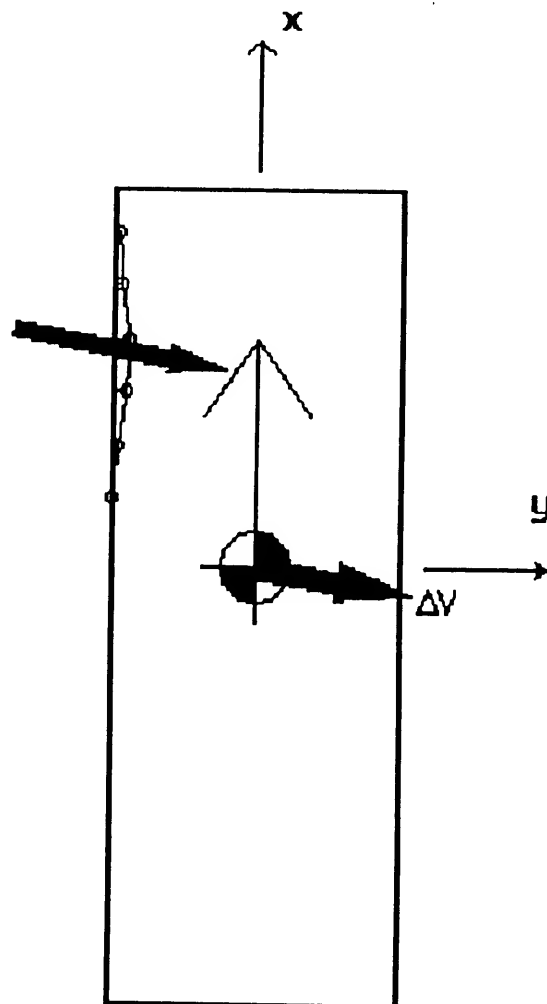
CRUSH STIFFNESSES:	A		B	
	lb/in	lb/in <sup>2</sup>	lb/in	lb/in <sup>2</sup>
ZONE 1	317.4 **	55.9 **	243.0	50.4 **
ZONE 2	317.4 **	55.9 **	243.0	50.4 **
ZONE 3	317.4 **	55.9 **	243.0	50.4 **
ZONE 4	317.4 **	55.9 **	243.0	50.4 **
ZONE 5	317.4 **	55.9 **	243.0	50.4 **

Vehicle No. 1



CDC/PDOF: 01FZEW1 20.0 deg  
Max Impact Force: 181243 N

Vehicle No. 2

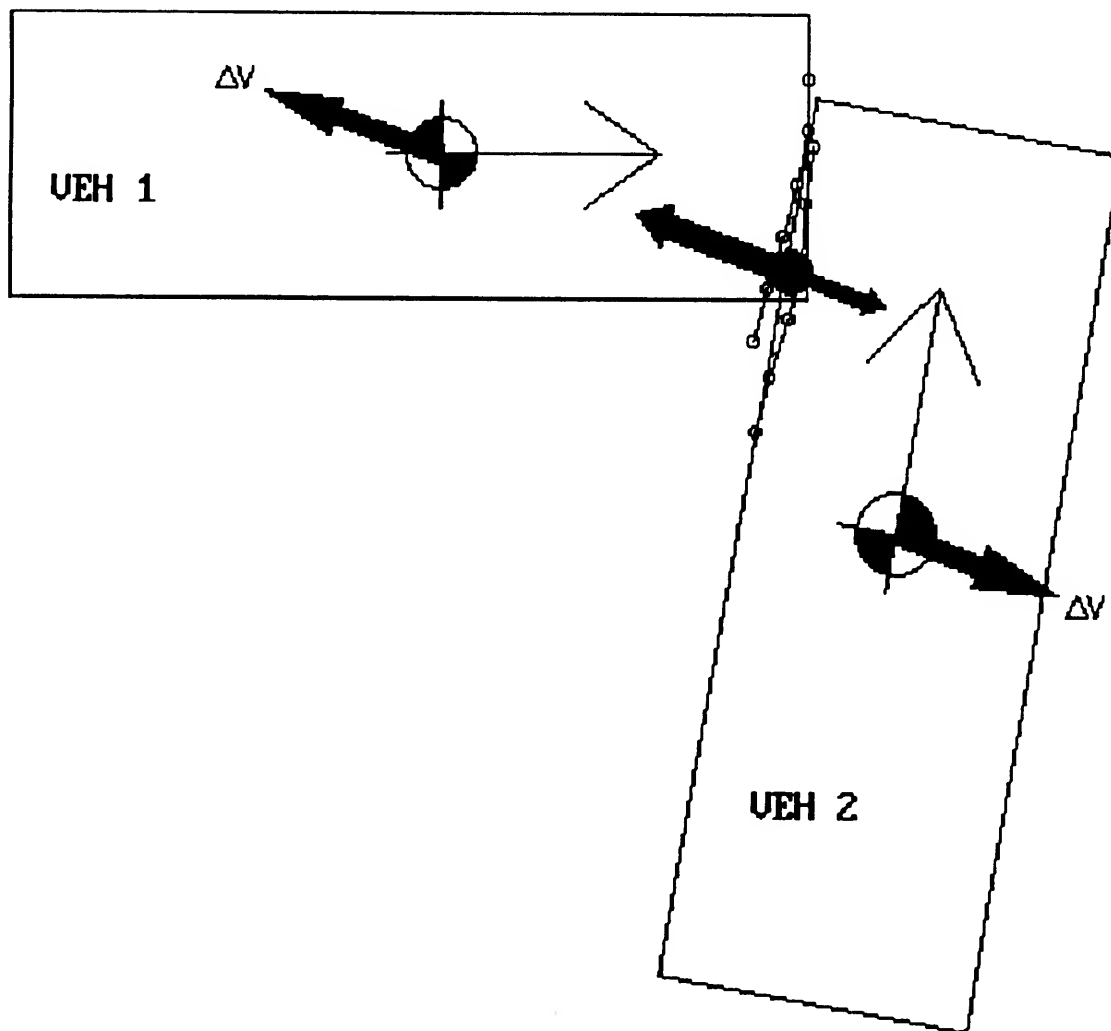


CDC/PDOF: 09LYEW2 -80.0 deg  
Max Impact Force: 111382 N



EDCRASH  
Damage Profiles

	Ueh #1	Ueh #2
Delta-U (km/h):		
X	-14.3	-2.5
Y	-5.2	14.0
Tot	15.2	14.2
Crush Data (cm):		
W	160.0	177.0
D	33.0	133.0
C1	0.0	0.0
C2	0.5	3.0
C3	7.5	7.7
C4	15.5	10.5
C5	26.0	5.0
C6	33.0	3.5



EDCRASH  
At Impact

	Ueh #1	Ueh #2
Delta-U (km/h)		
(BASIS: Damage)		
X	-14.3	-2.5
Y	-5.2	14.0
Tot	15.2	14.2
PDOF	20.0	-80.0

UNITS: km/h,m,deg

(NO SCENE DATA)

S U M M A R Y      O F      E D C R A S H      R E S U L T S

Lic. User: NHTSA #8      S/N: 0266-8      Version: 4.61

Date:  1995      9518

MESSAGES:

*Run 4*

NO MESSAGES

VEHICLE # 1

IMPACT SPEED km/h		SPEED CHANGE km/h			BASIS FOR RESULTS
FWD	LAT	TOTAL	LONG.	LATERAL	
N/A	N/A	N/A	N/A	N/A	SPINOUT TRAJECTORIES AND CONSERVATION OF LINEAR MOMENTUM
N/A	N/A	N/A	N/A	N/A	SPINOUT TRAJECTORIES AND DAMAGE
		15.7	-14.8	-5.4	DAMAGE DATA ONLY

VEHICLE # 2

IMPACT SPEED km/h		SPEED CHANGE km/h			BASIS FOR RESULTS
FWD	LAT	TOTAL	LONG.	LATERAL	
N/A	N/A	N/A	N/A	N/A	SPINOUT TRAJECTORIES AND CONSERVATION OF LINEAR MOMENTUM
N/A	N/A	N/A	N/A	N/A	SPINOUT TRAJECTORIES AND DAMAGE
		14.6	-2.5	14.4	DAMAGE DATA ONLY

SUMMARY OF DAMAGE DATA  
(NOTE: '\*\*\*' indicates default value)

	Vehicle #1	Vehicle #2
CLASS / STIFFNESS CATEGORIES	3 / 3	4 / 4
WEIGHT	1812.0 kg	1946.0 kg
CDC	01FZEW1	09LYEW2
DAMAGE WIDTH	160.0 cm	177.0 cm
CRUSH DEPTH 1	0.0 cm	0.0 cm
CRUSH DEPTH 2	0.5 cm	3.0 cm
CRUSH DEPTH 3	7.5 cm	7.7 cm
CRUSH DEPTH 4	15.5 cm	10.5 cm
CRUSH DEPTH 5	26.0 cm	5.0 cm
CRUSH DEPTH 6	33.0 cm	3.5 cm
DAMAGE MIDPOINT OFFSET	33.0 cm	133.0 cm
DAMAGE ENERGY	30832.0 Joules	13052.9 Joules
MAGNITUDE OF PRINCIPAL FORCE	181242.5 N	159691.1 N
DIRECTION OF PRINCIPAL FORCE	20.0 deg	-80.0 deg
MOMENT ARM OF PRINCIPAL FORCE	-7.7 cm	125.5 cm
DAMAGE CENTROID	70.8 cm	143.9 cm

DIMENSIONAL, INERTIAL AND CRUSH STIFFNESS PROPERTIES  
(NOTE: '\*\*\*' indicates default value)

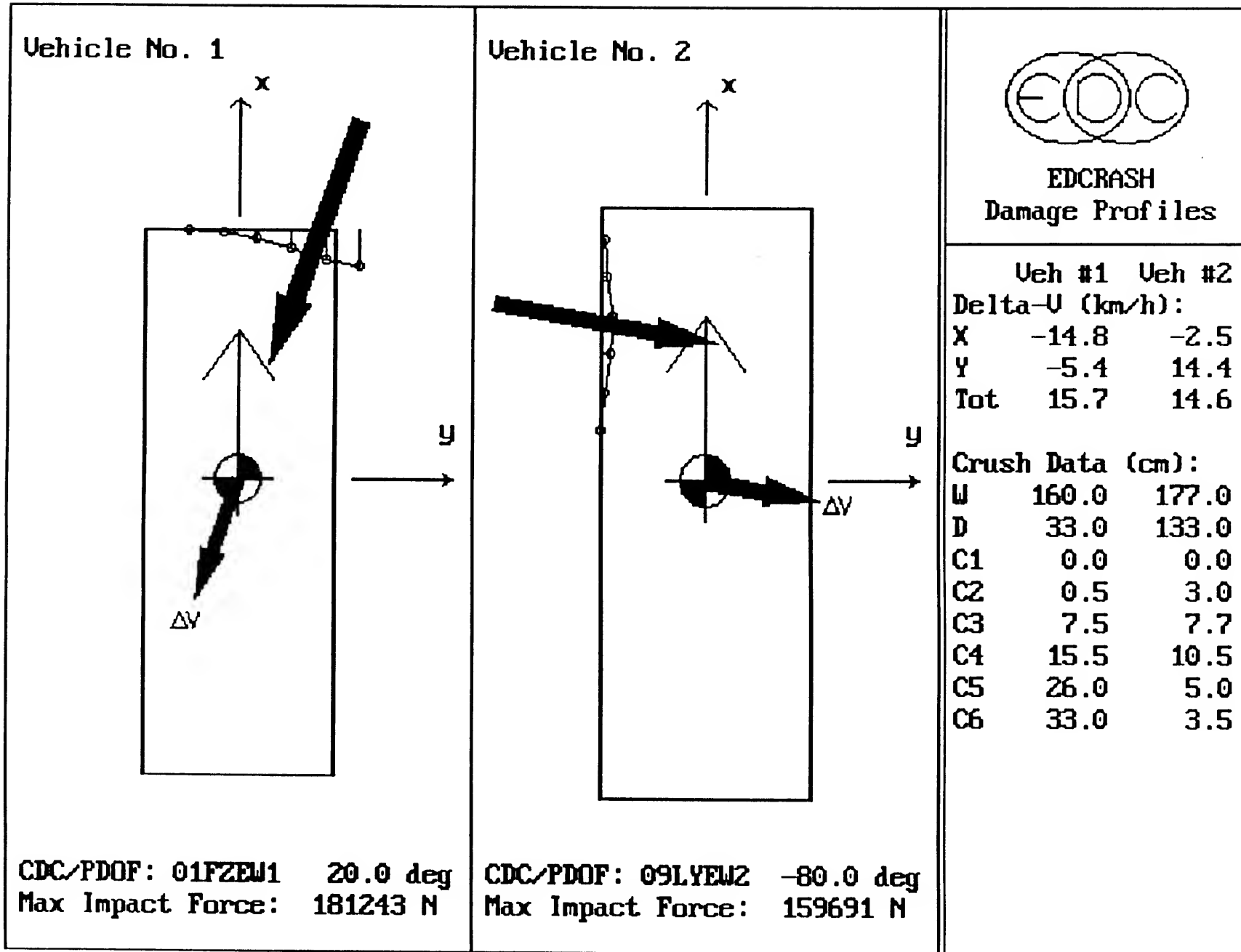
	Vehicle #1		Vehicle #2	
CG TO FRONT AXLE	130.3 cm	**	138.9 cm	**
CG TO REAR AXLE	141.0 cm	**	150.4 cm	**
TRACKWIDTH	149.6 cm	**	154.7 cm	**
YAW MOMENT OF INERTIA	3882.9 kg-m <sup>2</sup>	**	4693.2 kg-m <sup>2</sup>	**
MASS	1809.0 kg		1942.8 kg	
BODY LENGTH FROM CG TO FRONT	228.1 cm	**	251.0 cm	**
BODY LENGTH FROM CG TO REAR	-270.3 cm	**	-289.6 cm	**
BODY OVERALL WIDTH	176.3 cm		194.6 cm	

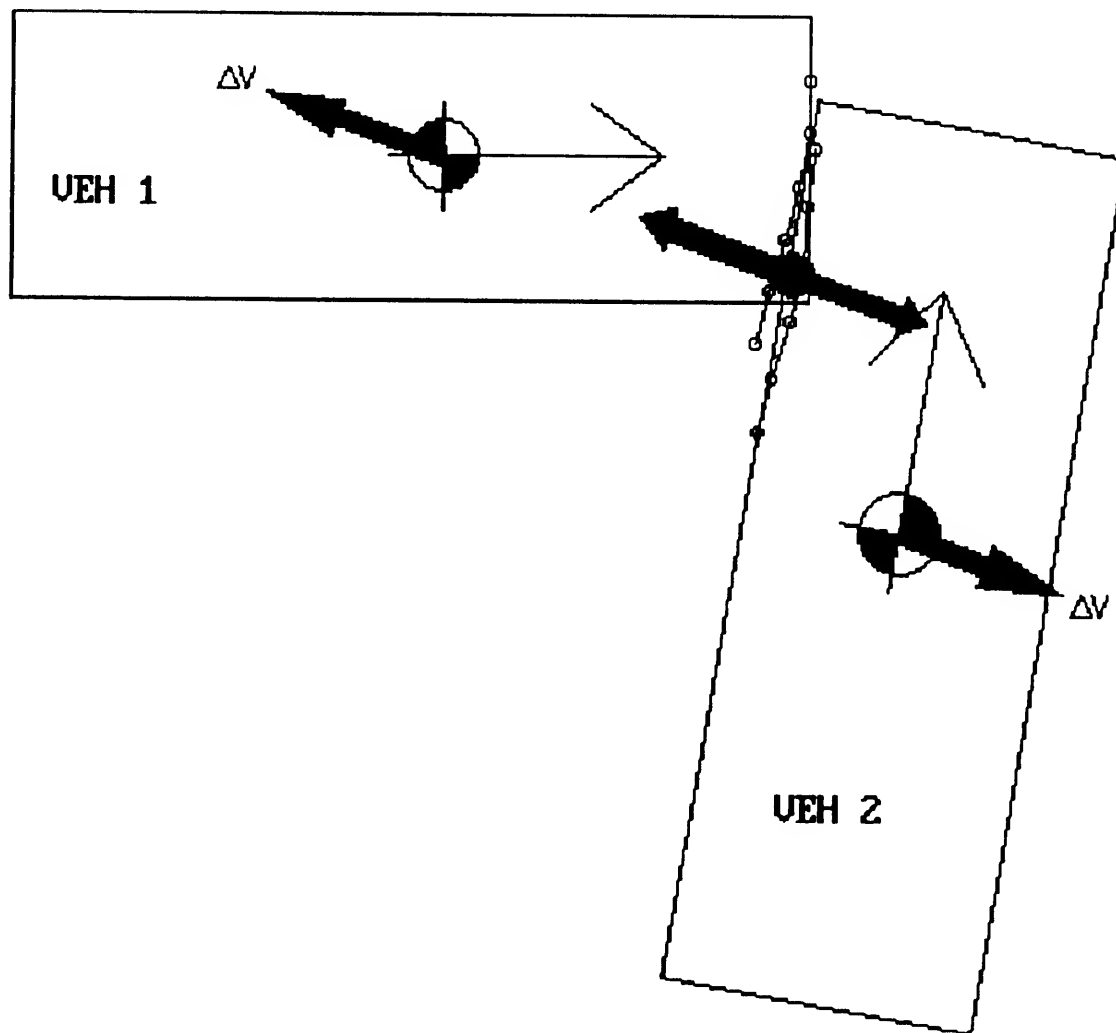
  

CRUSH STIFFNESSES:	A	B	A	B
	lb/in	lb/in <sup>2</sup>	lb/in	lb/in <sup>2</sup>
ZONE 1	317.4 **	55.9 **	325.2	82.8
ZONE 2	317.4 **	55.9 **	325.2	82.8
ZONE 3	317.4 **	55.9 **	325.2	82.8
ZONE 4	317.4 **	55.9 **	325.2	82.8
ZONE 5	317.4 **	55.9 **	325.2	82.8

37

Run 4





EDCRASH  
At Impact

	Ueh #1	Ueh #2
Delta-U (km/h)		
(BASIS: Damage)		
X	-14.8	-2.5
Y	-5.4	14.4
Tot	15.7	14.6
PDOF	20.0	-80.0

UNITS: km/h,m,deg

(NO SCENE DATA)

S U M M A R Y      O F      E D C R A S H      R E S U L T S

Lic. User: NHTSA #8      S/N: 0266-8      Version: 4.61

Date: ~~1995~~ 1995      9518

MESSAGES:

*Run 5*

NO MESSAGES

VEHICLE # 1

IMPACT SPEED km/h		SPEED CHANGE km/h			BASIS FOR RESULTS
FWD	LAT	TOTAL	LONG.	LATERAL	
N/A	N/A	N/A	N/A	N/A	SPINOUT TRAJECTORIES AND CONSERVATION OF LINEAR MOMENTUM
N/A	N/A	N/A	N/A	N/A	SPINOUT TRAJECTORIES AND DAMAGE
		16.5	-15.5	-5.6	DAMAGE DATA ONLY

VEHICLE # 2

IMPACT SPEED km/h		SPEED CHANGE km/h			BASIS FOR RESULTS
FWD	LAT	TOTAL	LONG.	LATERAL	
N/A	N/A	N/A	N/A	N/A	SPINOUT TRAJECTORIES AND CONSERVATION OF LINEAR MOMENTUM
N/A	N/A	N/A	N/A	N/A	SPINOUT TRAJECTORIES AND DAMAGE
		15.4	-2.7	15.1	DAMAGE DATA ONLY



SUMMARY OF DAMAGE DATA  
(NOTE: '\*\*' indicates default value)

	Vehicle #1	Vehicle #2
CLASS / STIFFNESS CATEGORIES	3 / 3	4 / 4
WEIGHT	1812.0 kg	1946.0 kg
CDC	01FZEW1	09LYEW2
DAMAGE WIDTH	160.0 cm	177.0 cm
CRUSH DEPTH 1	0.0 cm	0.0 cm
CRUSH DEPTH 2	0.5 cm	3.0 cm
CRUSH DEPTH 3	7.5 cm	7.7 cm
CRUSH DEPTH 4	15.5 cm	10.5 cm
CRUSH DEPTH 5	26.0 cm	5.0 cm
CRUSH DEPTH 6	33.0 cm	3.5 cm
DAMAGE MIDPOINT OFFSET	33.0 cm	133.0 cm
DAMAGE ENERGY	35263.3 Joules	13052.9 Joules
MAGNITUDE OF PRINCIPAL FORCE	233687.6 N	159691.1 N
DIRECTION OF PRINCIPAL FORCE	20.0 deg	-80.0 deg
MOMENT ARM OF PRINCIPAL FORCE	-0.3 cm	125.5 cm
DAMAGE CENTROID	78.2 cm	143.9 cm

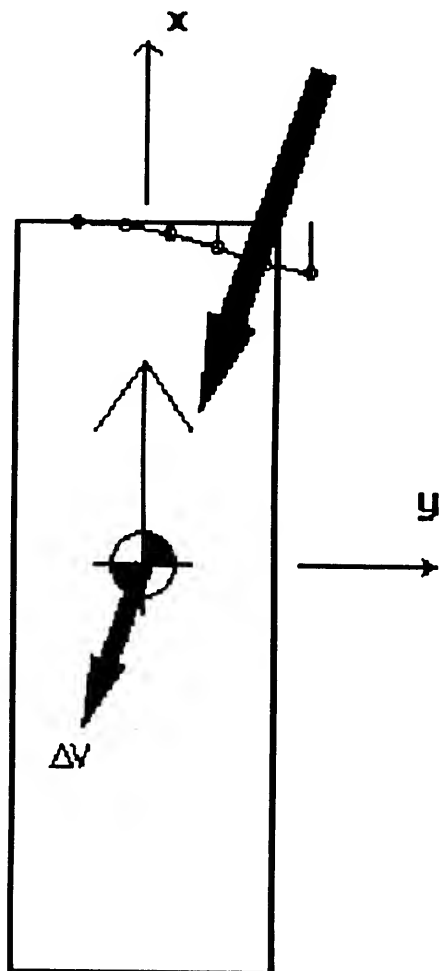
DIMENSIONAL, INERTIAL AND CRUSH STIFFNESS PROPERTIES  
(NOTE: '\*\*' indicates default value)

	Vehicle #1		Vehicle #2	
CG TO FRONT AXLE	130.3 cm	**	138.9 cm	**
CG TO REAR AXLE	141.0 cm	**	150.4 cm	**
TRACKWIDTH	149.6 cm	**	154.7 cm	**
YAW MOMENT OF INERTIA	3882.9 kg-m <sup>2</sup>	**	4693.2 kg-m <sup>2</sup>	**
MASS	1809.0 kg		1942.8 kg	
BODY LENGTH FROM CG TO FRONT	228.1 cm	**	251.0 cm	**
BODY LENGTH FROM CG TO REAR	-270.3 cm	**	-289.6 cm	**
BODY OVERALL WIDTH	176.3 cm		194.6 cm	

CRUSH STIFFNESSES:

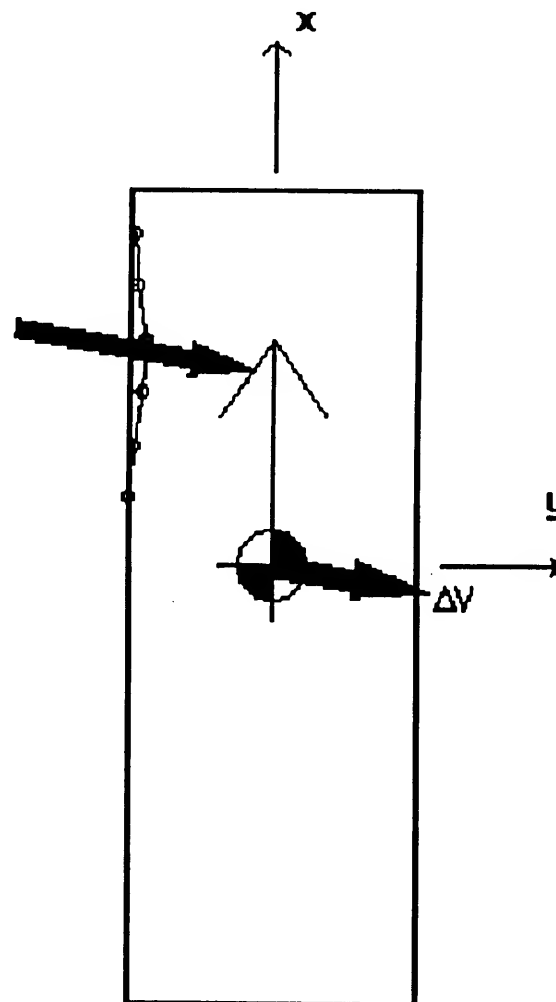
	A	B	A	B
	lb/in	lb/in <sup>2</sup>	lb/in	lb/in <sup>2</sup>
ZONE 1	337.4	85.9	325.2	82.8
ZONE 2	337.4	85.9	325.2	82.8
ZONE 3	337.4	85.9	325.2	82.8
ZONE 4	337.4	85.9	325.2	82.8
ZONE 5	337.4	85.9	325.2	82.8

Vehicle No. 1

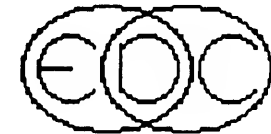


CDC/PDOF: 01FZEW1 20.0 deg  
Max Impact Force: 233688 N

Vehicle No. 2



CDC/PDOF: 09LYEW2 -80.0 deg  
Max Impact Force: 159691 N



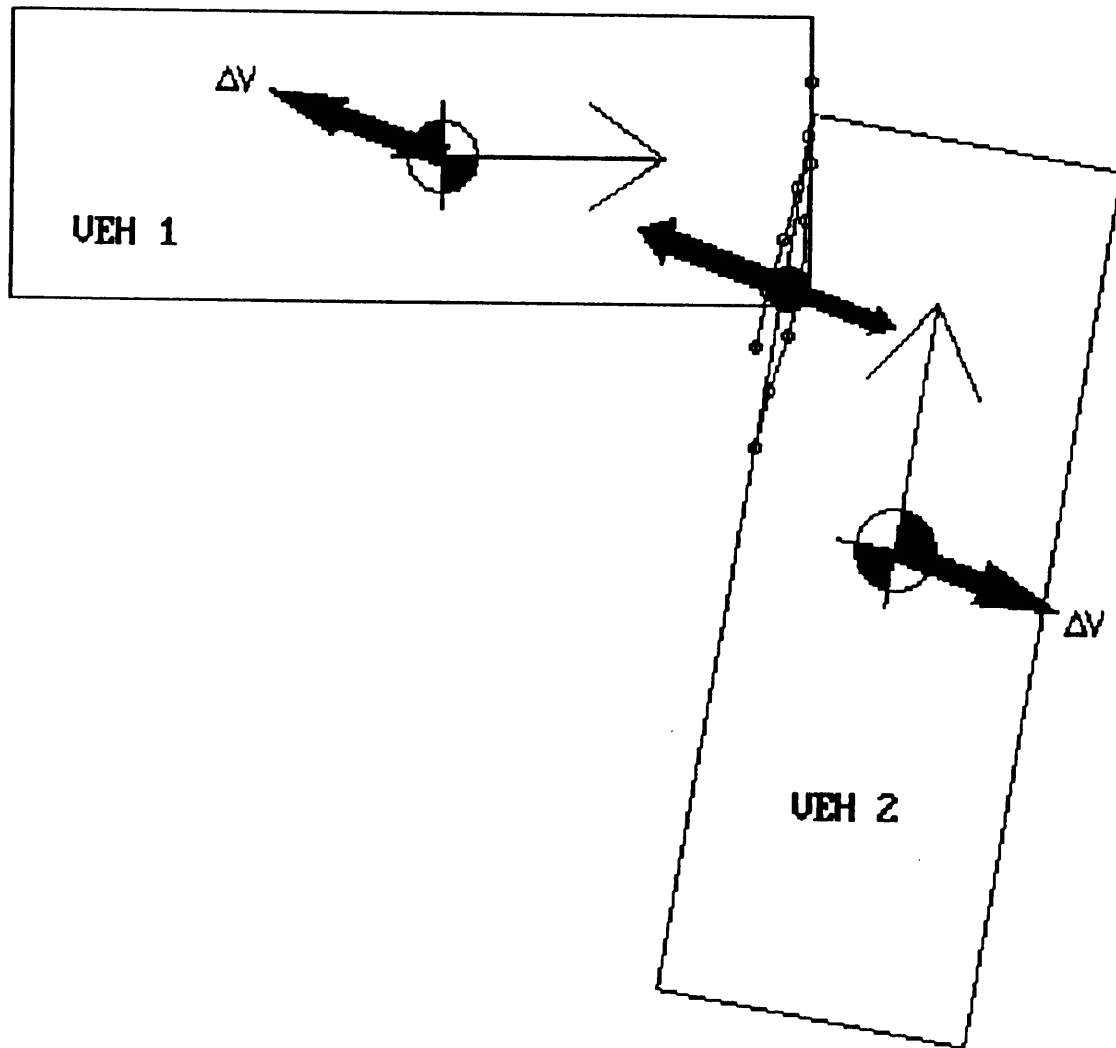
**EDCRASH  
Damage Profiles**

	Veh #1	Veh #2
Delta-U (km/h):		
X	-15.5	-2.7
Y	-5.6	15.1
Tot	16.5	15.4

Crush Data (cm):		
W	160.0	177.0
D	33.0	133.0
C1	0.0	0.0
C2	0.5	3.0
C3	7.5	7.7
C4	15.5	10.5
C5	26.0	5.0
C6	33.0	3.5

34

Run 5



EDCRASH  
At Impact

	Ueh #1	Ueh #2
Delta-U (km/h)		
(BASIS: Damage)		
X	-15.5	-2.7
Y	-5.6	15.1
Tot	16.5	15.4
PDOF	20.0	-80.0

UNITS: km/h,m,deg

(NO SCENE DATA)

### **TRC VECTOR ANALYSIS ITERATIONS**

The TRC Vector Analysis program was used to determine the resultant theoretical PDOFs for both vehicles. Heading angles were determined from the scene evidence and weights were obtained from original specifications, interviewees, and the default NASS CDS occupant weights (vehicle #2). Based on our inspection of the each vehicle's crush, this contractor estimates the Direction of Principal Force (PDOF) as +20 degrees for the case vehicle and -80 degrees for vehicle #2 (in accordance with NASS, CDS protocol). Iterations four and five match most closely these observed values. The driver of the case vehicle indicated in her interview that she was "killing time" waiting for her daughter's school to end. Thus, she most likely was traveling below the posted SPEED LIMIT of 56 k.p.h. (35 m.p.h.) when she braked and steered left trying to avoid vehicle #2; therefore, her speed at impact was most likely around her indicated 40 k.p.h. (25 m.p.h.). After vehicle #2 entered the intersection, his speed at impact was most likely around 16 k.p.h. (10 m.p.h.)--note, the theoretical PDOF for vehicle #2 with an impact speed of 8 k.p.h. (5 m.p.h.) is between -90 and -100 degrees.

PDOF & Delta V Estimation From At Impact Heading Angles, Slip, and Momentum

Case Number: TRC/IU 95-18

Vehicle Numbers: 01 and 02

(Both Vehicles Must Be Tracking Or CRASH 3 Slip Angle(s) Estimated)

(Neither Vehicle May Be Backing)

(If The Back Of A Vehicle Is Involved, Its Speed Must Be Set To Zero)

(Some Configurations Involving Heavy Trucks Give Erroneous Results)

Vector Analysis Area	GV27(V01)	GV28(V02)		
Ln. Axis Heading Angle	89	16		
CG Heading Angle	89	16		
CRASH 3 Slip Angle	0	0		
Weight-Cargo	5	0		
Weight-Vehicle Curb Wt	1726	1807		
Weight-Passenger(s)	81	139		
Weight-Total	1812	1946		
Estimated Speed	56 (35)	8 (5) (mph)		
Momentum	101472	15568		
PDOF (Degrees)	9	-98	91	STM
PDOF (Clock Direction)	12	9		
Theoretical Delta V	28.1	26.1		
Theoretical Common Vel.		28.5	Post-Crash CG Heading	81

PDOF & Delta V Estimation From At Impact Heading Angles, Slip, and Momentum

Case Number: TRC/IU 95-18

Vehicle Numbers: 01 and 02

(Both Vehicles Must Be Tracking Or CRASH 3 Slip Angle(s) Estimated)

(Neither Vehicle May Be Backing)

(If The Back Of A Vehicle Is Involved, Its Speed Must Be Set To Zero)

(Some Configurations Involving Heavy Trucks Give Erroneous Results)

Vector Analysis Area	GV27(V01)	GV28(V02)		
Ln. Axis Heading Angle	89	16		
CG Heading Angle	89	16		
CRASH 3 Slip Angle	0	0		
Weight-Cargo	5	0		
Weight-Vehicle Curb Wt	1726	1807		
Weight-Passenger(s)	81	139		
Weight-Total	1812	1946		
Estimated Speed	40 (25)	16 (10) (mph)		
Momentum	72480	31136		
PDOF (Degrees)	25	-82	91	STM
PDOF (Clock Direction)	1	9		
Theoretical Delta V	19.9	18.6		
Theoretical Common Vel.		23.1	Post-Crash CG Heading	69

PDOF & Delta V Estimation From At Impact Heading Angles, Slip, and Momentum  
Case Number: TRC/IU 95-18

Vehicle Numbers: 01 and 02

(Both Vehicles Must Be Tracking Or CRASH 3 Slip Angle(s) Estimated)

(Neither Vehicle May Be Backing)

(If The Back Of A Vehicle Is Involved, Its Speed Must Be Set To Zero)

(Some Configurations Involving Heavy Trucks Give Erroneous Results)

Vector Analysis Area	GV27(V01)	GV28(V02)		
Ln. Axis Heading Angle	89	16		
CG Heading Angle	89	16		
CRASH 3 Slip Angle	0	0		
Weight-Cargo	5	0		
Weight-Vehicle Curb Wt	1726	1807		
Weight-Passenger(s)	81	139		
Weight-Total	1812	1946		
Estimated Speed	40 (25)	8 (5) (mph)		
Momentum	72480	15568		
PDOF (Degrees)	12	-95	██████/91	STM
PDOF (Clock Direction)	12	9		
Theoretical Delta V	19.9	18.5		
Theoretical Common Vel.		20.9	Post-Crash CG Heading	78

PDOF & Delta V Estimation From At Impact Heading Angles, Slip, and Momentum  
Case Number: TRC/IU 95-18

Vehicle Numbers: 01 and 02

(Both Vehicles Must Be Tracking Or CRASH 3 Slip Angle(s) Estimated)

(Neither Vehicle May Be Backing)

(If The Back Of A Vehicle Is Involved, Its Speed Must Be Set To Zero)

(Some Configurations Involving Heavy Trucks Give Erroneous Results)

Vector Analysis Area	GV27(V01)	GV28(V02)		
Ln. Axis Heading Angle	89	16		
CG Heading Angle	89	16		
CRASH 3 Slip Angle	0	0		
Weight-Cargo	5	0		
Weight-Vehicle Curb Wt	1726	1807		
Weight-Passenger(s)	81	139		
Weight-Total	1812	1946		
Estimated Speed	48 (30)	8 (5) (mph)		
Momentum	86976	15568		
PDOF (Degrees)	10	-97	██████/91	STM
PDOF (Clock Direction)	12	9		
Theoretical Delta V	24.0	22.3		
Theoretical Common Vel.		24.7	Post-Crash CG Heading	80

PDOF & Delta V Estimation From At Impact Heading Angles, Slip, and Momentum

Case Number: TRC/IU 95-18

Vehicle Numbers: 01 and 02

(Both Vehicles Must Be Tracking Or CRASH 3 Slip Angle(s) Estimated)

(Neither Vehicle May Be Backing)

(If The Back Of A Vehicle Is Involved, Its Speed Must Be Set To Zero)

(Some Configurations Involving Heavy Trucks Give Erroneous Results)

Vector Analysis Area	GV27(V01)	GV28(V02)		
Ln. Axis Heading Angle	89	16		
CG Heading Angle	89	16		
CRASH 3 Slip Angle	0	0		
Weight-Cargo	5	0		
Weight-Vehicle Curb Wt	1726	1807		
Weight-Passenger(s)	81	139		
Weight-Total	1812	1946		
Estimated Speed	48 (30)	16 (10)	mph	
Momentum	86976	31136		
PDOF (Degrees)	21	-86	91	STM
PDOF (Clock Direction)	1	9		
Theoretical Delta V	23.8	22.2		
Theoretical Common Vel.		26.8	Post-Crash CG Heading	72

PDOF & Delta V Estimation From At Impact Heading Angles, Slip, and Momentum

Case Number: TRC/IU 95-18

Vehicle Numbers: 01 and 02

(Both Vehicles Must Be Tracking Or CRASH 3 Slip Angle(s) Estimated)

(Neither Vehicle May Be Backing)

(If The Back Of A Vehicle Is Involved, Its Speed Must Be Set To Zero)

(Some Configurations Involving Heavy Trucks Give Erroneous Results)

Vector Analysis Area	GV27(V01)	GV28(V02)		
Ln. Axis Heading Angle	89	16		
CG Heading Angle	89	16		
CRASH 3 Slip Angle	0	0		
Weight-Cargo	5	0		
Weight-Vehicle Curb Wt	1726	1807		
Weight-Passenger(s)	81	139		
Weight-Total	1812	1946		
Estimated Speed	56 (35)	16 (10)	mph	
Momentum	101472	31136		
PDOF (Degrees)	18	-89	91	STM
PDOF (Clock Direction)	1	9		
Theoretical Delta V	27.7	25.8		
Theoretical Common Vel.		30.5	Post-Crash CG Heading	74

## TRC VECTOR ANALYSIS PROGRAM

PDOF (Direction of Principal Force) is assigned based on the vehicular crush. Heading Angles are assigned based on scene evidence and Police Accident Reported crash configurations. This program was created to enable researchers in the NASS CDS to assess the compatibility of their assigned vehicle PDOFs and heading angles. When two vehicles are involved in an impact, researchers were often times submitting PDOFs that were not compatible with their heading angle assignments, indicating a lack of understanding of basic vector analysis concepts. Subsequently, the TRC has used this program to help verify our field PDOF assignments by making logical changes in the reconstructed crash configuration and determining the affect these changes have on PDOF.

**Principal:** This program is based on the geometric triangle rule (i.e., the sum of the three angles of a triangle must equal 180 degrees). The direction of one vehicle's (e.g., the case vehicle or Vehicle #1) CG (i.e., Center of Gravity) forms one side of the triangle. The direction of the other vehicle's (e.g., Vehicle #2) CG forms a second side of the triangle. The third side of the triangle is then formed by each vehicle's respective PDOF because the forces are assumed to act collinear.

**Assumptions:** It is assumed that each vehicle's weight can be represented by a "*point-mass*". It is assumed that the vector force acting on each vehicle goes through the center of gravity (i.e., CG) of the vehicle. Further, it is assumed that the vehicles move off together joined as one object. This program does not take into affect the mass reduction that occurs in other reconstruction programs since its primary purpose is to check the compatibility of the field determined PDOF and Heading Angle.

**Inputs:** Heading Angle, Slip Angle ("*Yaw*"), Weights (Curb Weight, Cargo Weight, and Weight of all occupants), and Speed

**Outputs:** This program's primary output is each vehicle's theoretical PDOF, presented in both degrees and CDC clock directions. Other outputs include a theoretical Delta V and a theoretical Common Velocity. The theoretical Delta V shows the maximum Delta V for the given speeds and weights assuming a dead center impact. For special crash investigation purposes, the last two outputs should be essentially ignored.

**Use:** The TRC uses this program on nonaxial collisions involving two vehicles to vary the "*less established inputs*" in order to determine what theoretical affect these changes have on our field observed PDOFs. The most solid input is the weights of the respective vehicles. Even though the cargo weight is rarely accurately known, its order of magnitude is such that in the vast majority of crashes its affect is minor. The next solid inputs are the vehicle's heading angle and slip angle. In most cases these are fairly well known from the available physical evidence. The least solid input is the vehicle's speed. The submitted iterations show the inputs and what variations to those inputs that the TRC took into consideration. The PDOF outcomes are then compared with our field observed PDOF and adjustments are made, if necessary, in our final coding.

**Purpose:** This program is but one more tool in the hands of a researcher aimed at providing the best data.



**Appendix C:**

**NASS CDS ACCIDENT FORM**



## ACCIDENT FORM

1. Primary Sampling Unit Number

2. Case Number - Stratum

10  
9518

### IDENTIFICATION

3. Number of General Vehicle  
Forms Submitted

02

4. Date of Accident  
(Month, Day, Year)

19 5

5. Time of Accident

1301

Code reported military time of accident.

NOTE: Midnight = 2400  
Unknown = 9999

### SPECIAL STUDIES - INDICATORS

Check (✓) each special study (SS15-SS18 below) that has been completed; code 1 for the checked special studies and 0 for the special studies not checked.

6. 0 SS15 Administrative Use

7. 0 SS16 Pedestrian Crash Data Study

(Data for this special study available  
in a separate file.)

8. 0 SS17 Impact Fires

9. 0 SS18 Unsafe Driver Actions

10. 0 SS19

### NUMBER OF EVENTS

11. Number of Recorded Events  
in This Accident

01

Code the number of events which occurred  
in this accident.

### ACCIDENT EVENTS

For each event that occurred in the accident, code the lowest numbered vehicle in the left columns and the other involved vehicle or object in the right columns.

Accident Event Sequence Number	Vehicle Number	Class Of Vehicle	General Area of Damage	Vehicle Number or Object Contacted	Class Of Vehicle	General Area of Damage
12. <u>01</u>	13. <u>01</u>	14. <u>02</u>	15. <u>F</u>	16. <u>02</u>	17. <u>04</u>	18. <u>L</u>
19. <u>02</u>	20. <u>    </u>	21. <u>    </u>	22. <u>    </u>	23. <u>    </u>	24. <u>    </u>	25. <u>    </u>
26. <u>03</u>	27. <u>    </u>	28. <u>    </u>	29. <u>    </u>	30. <u>    </u>	31. <u>    </u>	32. <u>    </u>
33. <u>04</u>	34. <u>    </u>	35. <u>    </u>	36. <u>    </u>	37. <u>    </u>	38. <u>    </u>	39. <u>    </u>
40. <u>05</u>	41. <u>    </u>	42. <u>    </u>	43. <u>    </u>	44. <u>    </u>	45. <u>    </u>	46. <u>    </u>

IF GREATER THAN FIVE EVENTS, CONTINUE CODING ON THE ACCIDENT EVENT SUPPLEMENT

# CODES FOR CLASS OF VEHICLE

- CV: 102.0 → 259
- (00) Not a motor vehicle
- (01) Subcompact/mini (wheelbase < 254 cm)
- (02) Compact (wheelbase ≥ 254 but < 265 cm)
- (03) Intermediate (wheelbase ≥ 265 but < 278 cm)
- (04) Full size (wheelbase ≥ 278 but < 291 cm)
- (05) Largest (wheelbase ≥ 291 cm)
- (09) Unknown passenger car size
- (14) Compact utility vehicle
- (15) Large utility vehicle (≤ 4,500 kgs GVWR)
- (16) Utility station wagon (≤ 4,500 kgs GVWR)
- (19) Unknown utility type
- (20) Minivan (≤ 4,500 kgs GVWR)
- (21) Large van (≤ 4,500 kgs GVWR)
- (24) Van Based school bus (≤ 4,500 kgs GVWR)
- (28) Other van type (≤ 4,500 kgs GVWR)
- (29) Unknown van type (≤ 4,500 kgs GVWR)
- (30) Compact pickup truck (≤ 4,500 kgs GVWR)
- (31) Large pickup truck (≤ 4,500 kgs GVWR)
- (38) Other pickup truck (≤ 4,500 kgs GVWR)
- (39) Unknown pickup truck type (≤ 4,500 kgs GVWR)
- (45) Other light truck (≤ 4,500 kgs GVWR)
- (48) Unknown light truck type (≤ 4,500 kgs GVWR)
- (49) Unknown light vehicle type
- (50) School bus (excludes van based) (> 4,500 kgs GVWR)
- (58) Other bus (> 4,500 kgs GVWR)
- (59) Unknown bus type
- (60) Truck (> 4,500 kgs GVWR)
- (67) Tractor without trailer
- (68) Tractor-trailer(s)
- (78) Unknown medium/heavy truck type
- (79) Unknown light/medium/heavy truck type
- (80) Motored cycle
- (90) Other vehicle
- (99) Unknown
- V2: 113.8 → 289

## CODES FOR GENERAL AREA OF DAMAGE (GAD)

CDS APPLICABLE AND OTHER VEHICLES	(O) Not a motor vehicle (N) Noncollision (F) Front	(R) Right side (L) Left side (B) Back	(T) Top (U) Undercarriage (9) Unknown
TDC APPLICABLE VEHICLES	(O) Not a motor vehicle (N) Noncollision (F) Front (R) Right side	(L) Left side (B) Back of unit with cargo area (rear of trailer or straight truck) (D) Back (rear of tractor)	(C) Rear of cab (V) Front of cargo area (T) Top (U) Undercarriage (9) Unknown

## CODES FOR VEHICLE NUMBER OR OBJECT CONTACTED

- (01-30) — Vehicle Number
- Noncollision
- (31) Overturn — rollover (excludes end-over-end)
- (32) Rollover — end-over-end
- (33) Fire or explosion
- (34) Jackknife
- (35) Other intraunit damage (specify): \_\_\_\_\_
- (36) Noncollision injury
- (38) Other noncollision (specify): \_\_\_\_\_
- (39) Noncollision — details unknown
- Collision With Fixed Object
- (41) Tree (≤ 10 cm in diameter)
- (42) Tree (> 10 cm in diameter)
- (43) Shrubbery or bush
- (44) Embankment
- (45) Breakaway pole or post (any diameter)
- Nonbreakaway Pole or Post
- (50) Pole or post (≤ 10 cm in diameter)
- (51) Pole or post (> 10 cm but ≤ 30 cm in diameter)
- (52) Pole or post (> 30 cm in diameter)
- (53) Pole or post (diameter unknown)
- (54) Concrete traffic barrier
- (55) Impact attenuator
- (56) Other traffic barrier (includes guardrail)  
(specify): \_\_\_\_\_
- (57) Fence
- (58) Wall
- (59) Building
- (60) Ditch or culvert
- (61) Ground
- (62) Fire hydrant
- (63) Curb
- (64) Bridge
- (68) Other fixed object (specify): \_\_\_\_\_
- (69) Unknown fixed object
- Collision with Nonfixed Object
- (70) Passenger car, light truck, van, or other vehicle not in-transport
- (71) Medium/heavy truck or bus not in-transport
- (72) Pedestrian
- (73) Cyclist or cycle
- (74) Other nonmotorist or conveyance
- (75) Vehicle occupant
- (76) Animal
- (77) Train
- (78) Trailer, disconnected in transport
- (79) Object fell from vehicle in-transport
- (88) Other nonfixed object (specify): \_\_\_\_\_
- (89) Unknown nonfixed object
- (98) Other event (specify): \_\_\_\_\_
- (99) Unknown event or object

**Appendix D:**

**NASS CDS VEHICLE FORMS: CASE VEHICLE**



## GENERAL VEHICLE FORM

1. Primary Sampling Unit Number <u>95</u> <u>10</u>	12. Speed Limit <u>056</u> (000) No statutory limit Code posted or statutory speed limit in kmph (999) Unknown <u>35</u> mph X 1.6093 = <u>56</u> kmph
2. Case Number - Stratum <u>95</u> <u>18</u>	
3. Vehicle Number <u>01</u>	
<b>VEHICLE IDENTIFICATION</b>	
4. Vehicle Model Year <u>95</u> Code the last two digits of the model year (99) Unknown	13. Police Reported Alcohol Presence For Driver <u>0</u> (0) No alcohol present (1) Yes alcohol present (7) Not reported (8) No driver present (9) Unknown
5. Vehicle Make (specify): <u>JAGUAR</u> Applicable codes are found in your NASS Data Collection, Coding and Editing Manual. (99) Unknown	14. Alcohol Test Result For Driver <u>96</u> Code actual value (decimal implied before first digit—0.xx) (95) Test refused (96) None given (97) AC test performed, results unknown (98) No driver present (99) Unknown Source: <u>PAR</u>
6. Vehicle Model (specify): <u>XJS CONV</u> <u>031</u> Applicable codes are found in your NASS Data Collection, Coding and Editing Manual. (999) Unknown	15. Police Reported Other Drug Presence For Driver <u>0</u> (0) No other drug(s) present (1) Yes other drug(s) present (7) Not reported (8) No driver present (9) Unknown
7. Body Type <u>01</u> Note: Applicable codes may be found on the back of this page.	16. Other Drug Specimen Test Result For Driver <u>0</u> (0) No specimen test given (1) Drug(s) not found in specimen (2) Drug(s) found in specimen, (specify):  (3) Specimen test given, results unknown or not obtained (8) No driver present (9) Unknown if specimen test given
8. Vehicle Identification Number <u>S A I N X 2 7 4 5 S C</u> Left justify; Slash zeros and letter Z (0 and-Z) No VIN—Code all zeros Unknown—Code all nines	17. Driver's Zip Code <u>[REDACTED]</u> (00001) Driver not a resident of U.S. or territories Code actual 5-digit zip code (99998) No driver present (99999) Unknown
9. Vehicle Special Use (This Trip) <u>0</u> (0) No special use (1) Taxi (2) Vehicle used as school bus (3) Vehicle used as other bus (4) Military (5) Police (6) Ambulance (7) Fire truck or car (8) Other (specify): (9) Unknown	18. Driver's Race/Ethnic Origin <u>3</u> (1) White (non-Hispanic) (2) Black (non-Hispanic) (3) White (Hispanic) (4) Black (Hispanic) (5) American Indian, Eskimo or Aleut (6) Asian or Pacific Islander (7) Other (specify):  (8) No driver present (9) Unknown
<b>OFFICIAL RECORDS</b>	
10. Police Reported Vehicle Disposition <u>1</u> (0) Not towed due to vehicle damage (1) Towed due to vehicle damage (9) Unknown	
11. Police Reported Travel Speed <u>056</u> Code to the nearest kmph (NOTE: 000 means less than 0.5 kmph) (160) 159.5 kmph and above (999) Unknown <u>35</u> mph X 1.6093 = <u>56</u> kmph	

# CODES FOR BODY TYPE

## CDS APPLICABLE VEHICLES

### Automobiles

- (01) Convertible (excludes sun-roof, t-bar)
- (02) 2-door sedan, hardtop, coupe
- (03) 3-door/2-door hatchback
- (04) 4-door sedan, hardtop
- (05) 5-door/4-door hatchback
- (06) Station wagon (excluding van and truck based)
- (07) Hatchback, number of doors unknown
- (08) Other automobile type (specify): \_\_\_\_\_
- (09) Unknown automobile type

### Automobile Derivatives

- (10) Auto based pickup (includes El Camino, Caballero, Ranchero, Brat, and Rabbit pickup)
- (11) Auto based panel (cargo station wagon, auto based ambulance/hearse)
- (12) Large limousine - more than four side doors or stretched chassis
- (13) Three-wheel automobile or automobile derivative

### Utility Vehicles ( $\leq 4,500$ kgs GVWR)

- (14) Compact utility (Jeep CJ-2 - CJ-7, Scrambler, Golden Eagle, Renegade, Laredo, Wrangler, Cherokee [84 and after], Dispatcher, Raider, Bronco II, Bronco [76 and before], Explorer, S-10 Blazer, Geo Tracker, Bravada, S-15 Jimmy, Thing, Pathfinder, Trooper, Trooper II, Rodeo, Amigo, Navajo, 4-Runner, Montero, Passport, Samurai, Sidekick, Rocky)
- (15) Large utility (includes Jeep Cherokee [83 and before], Ramcharger, Trailduster, Bronco-fullsize [78 and after], fullsize Blazer, fullsize Jimmy, Hummer, Landcruiser, Rover, Scout, Yukon)
- (16) Utility station wagon (Chevy Suburban, GMC Suburban, Travelall, Grand Wagoneer, includes suburban limousine)
- (19) Utility, unknown body type

### Van Based Light Trucks ( $\leq 4,500$ kgs GVWR)

- (20) Minivan (Town and Country, Caravan, Grand Caravan, Voyager, Grand Voyager, Mini-Ram, Vista, Aerostar, Windstar, Villager, Lumina APV, Trans Sport, Silhouette, Astro, Safari, Toyota Van, Toyota Minivan, Previa, Nissan Minivan, Quest, Mitsubishi Minivan, Expo Wagon, Vanagon/Camper.)
- (21) Large van (B150-B350, Sportsman, Royal, Maxiwagon, Ram, Tradesman, Voyager [83 and before], E150-E350, Econoline, Clubwagon, Chateau, G10-G30, Chevy Van, Beauville, Sport Van, G15-G35, Rally Van, Vandura.)
- (22) Step van or walk-in van ( $\leq 4,500$  kgs GVWR)
- (23) Van based motorhome ( $\leq 4,500$  kgs GVWR)
- (24) Van based school bus ( $\leq 4,500$  kgs GVWR)
- (25) Van based other bus ( $\leq 4,500$  kgs GVWR)
- (28) Other van type (Hi-Cube Van, Kary) (specify): \_\_\_\_\_
- (29) Unknown van type

### Light Conventional Trucks (Pickup style cab, $\leq 4,500$ kgs GVWR)

- (30) Compact pickup (D50, Colt P/U, Ram 50, Dakota, Arrow Pickup [foreign], Ranger, Courier, S-10, T-10, LUV, S-15, T-15, Sonoma, Datsun/Nissan Pickup, P'up, Mazda Pickup, Toyota Pickup, Mitsubishi Pickup)
- (31) Large Pickup (Jeep Pickup, Comanche, Ram Pickup, D100-D350, W100-W350, F100-F350, C10-C35, K10-K35, R10-R35, V10-V35, Silverado, Sierra, R100-R500, T100)

- (32) Pickup with slide-in camper
- (33) Convertible pickup
- (39) Unknown pickup style light conventional truck type

### Other Light Trucks ( $\leq 4,500$ kgs GVWR)

- (40) Cab chassis based (includes rescue vehicles, light stake, dump, and tow truck)
- (41) Truck based panel
- (42) Light truck based motorhome (chassis mounted)
- (45) Other light conventional truck type
- (48) Unknown light truck type
- (49) Unknown light vehicle type (automobile, utility, van, or light truck)

## OTHER VEHICLES

### Buses (Excludes Van Based)

- (50) School bus (designed to carry students, not cross country or transit)
- (58) Other bus type (e.g., transit, intercity, bus based motorhome) (specify): \_\_\_\_\_
- (59) Unknown bus type

### Medium/Heavy Trucks ( $> 4,500$ kgs GVWR)

- (60) Step van ( $> 4,500$  kgs GVWR)
- (61) Single unit straight truck ( $4,500$  kgs  $<$  GVWR  $\leq 8,850$  kgs)
- (62) Single unit straight truck ( $8,850$  kgs  $<$  GVWR  $\leq 12,000$  kgs)
- (63) Single unit straight truck ( $> 12,000$  kgs GVWR)
- (64) Single unit straight truck, GVWR unknown
- (65) Medium/heavy truck based motorhome
- (67) Truck-tractor with no cargo trailer
- (68) Truck-tractor pulling one trailer
- (69) Truck-tractor pulling two or more trailers
- (70) Truck-tractor (unknown if pulling trailer)
- (78) Unknown medium/heavy truck type
- (79) Unknown truck type (light/medium/heavy)

### Motored Cycles (Does Not Include All-Terrain Vehicles/Cycles)

- (80) Motorcycle
- (81) Moped (motorized bicycle)
- (82) Three-wheel motorcycle or moped
- (88) Other motored cycle (minibike, motorscooter) (specify): \_\_\_\_\_
- (89) Unknown motored cycle type

### Other Vehicles

- (90) ATV (All-Terrain Vehicle) and ATC (All-Terrain Cycle)
- (91) Snowmobile
- (92) Farm equipment other than trucks
- (93) Construction equipment other than trucks
- (97) Other vehicle type
- (99) Unknown body type

## PRECRASH ENVIRONMENTAL DATA

19. Relation To Interchange Or Junction 2

- (0) Non-interchange area and non-junction  
(1) Interchange area related

*Non-Interchange junctions*

- (2) Intersection related  
(3) Driveway, alley access related  
(4) Other junction (specify) \_\_\_\_\_

(5) Unknown type of junction \_\_\_\_\_

(9) Unknown

20. Trafficway Flow 0

- (0) Not physically divided (two way traffic)  
(1) Divided trafficway-median strip without positive barrier  
(2) Divided trafficway-median strip with positive barrier  
(3) One way traffic  
(9) Unknown

21. Number Of Travel Lanes 2

- (1) One  
(2) Two  
(3) Three  
(4) Four  
(5) Five  
(6) Six  
(7) Seven or more  
(9) Unknown

22. Roadway Alignment 1

- (1) Straight  
(2) Curve right  
(3) Curve left  
(9) Unknown

23. Roadway Profile 2

- (1) Level  
(2) Uphill grade (> 2%)  
(3) Hill crest  
(4) Downhill grade (> 2%)  
(5) Sag  
(9) Unknown

24. Roadway Surface Type 2

- (1) Concrete  
(2) Bituminous (asphalt)  
(3) Brick or block  
(4) Slag, gravel, or stone  
(5) Dirt  
(8) Other (specify): \_\_\_\_\_  
(9) Unknown

25. Roadway Surface Condition 1

- (1) Dry  
(2) Wet  
(3) Snow or slush  
(4) Ice  
(5) Sand, dirt, or oil  
(8) Other (specify): \_\_\_\_\_  
(9) Unknown

26. Light Conditions 1

- (1) Daylight  
(2) Dark  
(3) Dark, but lighted  
(4) Dawn  
(5) Dusk  
(9) Unknown

27. Atmospheric Conditions 0

- (0) No adverse atmospheric-related driving conditions  
(1) Rain  
(2) Sleet/hail  
(3) Snow  
(4) Fog  
(5) Rain and fog  
(6) Sleet and fog  
(7) Other (e.g., smog, smoke, blowing sand or dust, etc.) (specify): \_\_\_\_\_  
(9) Unknown

28. Traffic Control Device 5

- (0) No traffic control(s)  
(1) Traffic control signal (not RR crossing)

*Regulatory*

- (2) Stop sign  
(3) Yield sign  
(4) School zone sign  
(5) Other regulatory sign (specify):

SPEED Limit

- (6) Warning sign (not RR crossing)  
(7) Unknown sign

(8) Miscellaneous/other controls including RR controls (specify): \_\_\_\_\_

(9) Unknown

29. Traffic Control Device Functioning 2

- (0) No traffic control device  
(1) Traffic control device not functioning (specify): \_\_\_\_\_  
(2) Traffic control device functioning properly  
(9) Unknown

**PRECRASH DRIVER RELATED DATA****30. Driver's Distraction/Inattention To Driving** 01  
(Prior To Recognition Of Critical Event)

- (00) No driver present  
 (01) Attentive or not distracted  
 (02) Looked but did not see

*Distractions*

- (03) By other occupant(s), (specify): \_\_\_\_\_  
 (04) By moving object in vehicle (specify): \_\_\_\_\_  
 (05) While talking or listening to cellular phone (specify location and type of phone): \_\_\_\_\_  
 (06) While dialing cellular phone (specify location and type of phone): \_\_\_\_\_  
 (07) While adjusting climate controls  
 (08) While adjusting radio, cassette, CD (specify): \_\_\_\_\_  
 (09) While using other device/object in vehicle (specify): \_\_\_\_\_  
 (10) Sleepy or fell asleep  
 (11) Distracted by outside person, object, or event (specify): \_\_\_\_\_  
 (12) Eating or drinking  
 (13) Smoking related  
 (97) Distracted/inattentive, details unknown  
 (98) Other, distraction (specify): \_\_\_\_\_  
 (99) Unknown

**31. Pre-Event Movement** (Prior to Recognition of Critical Event) 01

- (00) No driver present  
 (01) Going straight  
 (02) Decelerating in traffic lane  
 (03) Accelerating in traffic lane  
 (04) Starting in traffic lane  
 (05) Stopped in traffic lane  
 (06) Passing or overtaking another vehicle  
 (07) Disabled or parked in travel lane  
 (08) Leaving a parking position  
 (09) Entering a parking position  
 (10) Turning right  
 (11) Turning left  
 (12) Making a U-turn  
 (13) Backing up (other than for parking position)  
 (14) Negotiating a curve  
 (15) Changing lanes  
 (16) Merging  
 (17) Successful avoidance maneuver to a previous critical event  
 (97) Other (specify): \_\_\_\_\_  
 (99) Unknown

**32. Critical Precrash Event** 66  
*This Vehicle Loss of Control Due To:*

- (01) Blow out or flat tire  
 (02) Stalled engine  
 (03) Disabling vehicle failure (e.g., wheel fell off) (specify): \_\_\_\_\_  
 (04) Non-disabling vehicle problem (e.g., hood flew up) (specify): \_\_\_\_\_  
 (05) Poor road conditions (puddle, pot hole, ice, etc.) (specify): \_\_\_\_\_  
 (06) Traveling too fast for conditions  
 (08) Other cause of control loss (specify): \_\_\_\_\_  
 (09) Unknown cause of control loss

*This Vehicle Traveling*

- (10) Over the lane line on left side of travel lane  
 (11) Over the lane line on right side of travel lane  
 (12) Off the edge of the road on the left side  
 (13) Off the edge of the road on the right side  
 (14) End departure  
 (15) Turning left at intersection  
 (16) Turning right at intersection  
 (17) Crossing over (passing through) intersection  
 (18) This vehicle decelerating  
 (19) Unknown travel direction

*Other Motor Vehicle In Lane*

- (50) Other vehicle stopped  
 (51) Traveling in same direction with lower steady speed  
 (52) Traveling in same direction while decelerating  
 (53) Traveling in same direction with higher speed  
 (54) Traveling in opposite direction  
 (55) In crossover  
 (56) Backing  
 (59) Unknown travel direction of other motor vehicle in lane

*Other Motor Vehicle Encroaching Into Lane*

- (60) From adjacent lane (same direction)—over left lane line  
 (61) From adjacent lane (same direction)—over right lane line  
 (62) From opposite direction—over left lane line  
 (63) From opposite direction—over right lane line  
 (64) From parking lane  
 (65) From crossing street, turning into same direction  
 (66) From crossing street, across path  
 (67) From crossing street, turning into opposite direction  
 (68) From crossing street, intended path not known  
 (70) From driveway, turning into same direction  
 (71) From driveway, across path  
 (72) From driveway, turning into opposite direction  
 (73) From driveway, intended path not known  
 (74) From entrance to limited access highway  
 (78) Encroachment by other vehicle—details unknown

*Pedestrian, Pedalcyclist, or Other Nonmotorist*

- (80) Pedestrian in roadway  
 (81) Pedestrian approaching roadway  
 (82) Pedestrian—unknown location  
 (83) Pedalcyclist or other nonmotorist in roadway (specify): \_\_\_\_\_  
 (84) Pedalcyclist or other nonmotorist approaching roadway, (specify): \_\_\_\_\_  
 (85) Pedalcyclist or other nonmotorist—unknown location (specify): \_\_\_\_\_

*Object or Animal*

- (87) Animal in roadway  
 (88) Animal approaching roadway  
 (89) Animal—unknown location  
 (90) Object in roadway  
 (91) Object approaching roadway  
 (92) Object—unknown location  
 (98) Other critical precrash event (specify): \_\_\_\_\_  
 (99) Unknown



33. Attempted Avoidance Maneuver 08

- (00) No driver present
- (01) No avoidance maneuver
- (02) Braking (no lockup)
- (03) Braking (lockup)
- (04) Braking (lockup unknown)
- (05) Releasing brakes
- (06) Steering left
- (07) Steering right
- (08) Braking and steering left
- (09) Braking and steering right
- (10) Accelerating
- (11) Accelerating and steering left
- (12) Accelerating and steering right
- (98) Other action (specify): \_\_\_\_\_

(99) Unknown

34. Pre-Impact Stability 1

- (0) No driver present
- (1) Tracking
- (2) Skidding longitudinally—rotation less than 30 degrees
- (3) Skidding laterally—clockwise rotation
- (4) Skidding laterally—counterclockwise rotation
- (7) Other vehicle loss-of-control (specify): \_\_\_\_\_

(9) Precrash stability unknown

35. Pre-Impact Location 2

- (0) No driver present
- (1) Stayed in original travel lane
- (2) Stayed on roadway but left original travel lane
- (3) Stayed on roadway, not known if left original travel lane
- (4) Departed roadway
- (5) Remained off roadway
- (6) Returned to roadway
- (7) Entered roadway
- (9) Unknown

36. Accident Type 88

(Note: Applicable codes on back of this page)

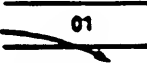



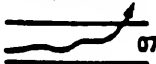




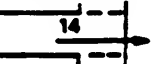

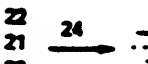
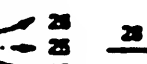
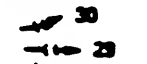



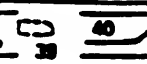
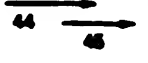





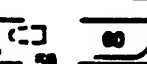

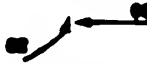
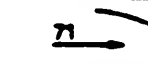
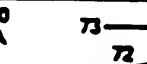
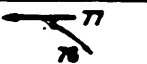


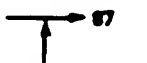

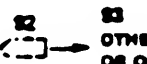
(00) No impact

Code the number of the diagram that best describes the accident circumstance

(98) Other accident type (specify): \_\_\_\_\_

(99) Unknown

**STOP HERE IF GV07 DOES NOT EQUAL 01 - 49**

Category	Configuration	ACCIDENT TYPES (Includes Intent)				
I Single Driver	A Right Roadside Departure	 01 DRIVE OFF ROAD	 02 CONTROL/ TRACTION LOSS	 03 AVOID COLLISION WITH VEH., PED., ANIM.	04 SPECIFICS OTHER	05 SPECIFICS UNKNOWN
	B Left Roadside Departure	 06 DRIVE OFF ROAD	 07 CONTROL/ TRACTION LOSS	 08 AVOID COLLISION WITH VEH., PED., ANIM.	09 SPECIFICS OTHER	10 SPECIFICS UNKNOWN
	C Forward Impact	 11 PARKED VEH.	 12 STA. OBJECT	 13 PEDESTRIAN/ ANIMAL	 14 END DEPARTURE	15 SPECIFICS OTHER 16 SPECIFICS UNKNOWN
II Same Trafficway Same Direction	D Rear-End	 20 STOPPED 21, 22, 23	 22 SLOWER 24, 25, 27	 26 DECEL. 28, 29, 31	 30 AVOID COLLISION WITH VEH.	(EACH - 32) SPECIFICS OTHER (EACH - 33) SPECIFICS UNKNOWN
	E Forward Impact	 34 CONTROL/ TRACTION LOSS	 36 CONTROL/ TRACTION LOSS	 38 AVOID COLLISION WITH VEH.	 40 AVOID COLLISION WITH OBJECT	(EACH - 42) SPECIFICS OTHER (EACH - 43) SPECIFICS UNKNOWN
	F Sideswipe Angle	 44 45 46 47	 46 47	(EACH - 48) SPECIFICS OTHER		(EACH - 49) SPECIFICS UNKNOWN
III Same Trafficway Opposite Direction	G Head-On	 50 LATERAL MOVE	51 (EACH - 52) SPECIFICS OTHER	(EACH - 53) SPECIFICS UNKNOWN		
	H Forward Impact	 54 CONTROL/ TRACTION LOSS	 56 CONTROL/ TRACTION LOSS	 58 AVOID COLLISION WITH VEH.	 60 AVOID COLLISION WITH OBJECT	(EACH - 62) SPECIFICS OTHER (EACH - 63) SPECIFICS UNKNOWN
	I Sideswipe Angle	 64 LATERAL MOVE	65 (EACH - 66) SPECIFICS OTHER	(EACH - 67) SPECIFICS UNKNOWN		
IV Change Trafficway Vehicle Turning	J Turn Across Path	 68 INITIAL OPPOSITE DIRECTIONS	 71 INITIAL SAME DIRECTIONS	 73 72	(EACH - 74) SPECIFICS OTHER (EACH - 75) SPECIFICS UNKNOWN	
	K Turn Into Path	 77 TURN INTO SAME DIRECTION	 79 TURN INTO OPPOSITE DIRECTIONS	 81 82	(EACH - 84) SPECIFICS OTHER (EACH - 85) SPECIFICS UNKNOWN	
V Intersecting Paths (Vehicle Damage)	L Straight Paths	 87 88	 89 90	(EACH - 90) SPECIFICS OTHER (EACH - 91) SPECIFICS UNKNOWN		
VI Miscellaneous	M Backing Etc	 92 BACKING VEH.	93 OTHER VEH. OR OBJECT	98 Other Accident Type 99 Unknown Accident Type 00 No Impact		

**OCCUPANT RELATED**

37. Driver Presence in Vehicle 1  
 (0) Driver not present  
 (1) Driver present  
 (9) Unknown
38. Number of Occupants This Vehicle 02  
 (00-96) Code actual number of occupants for this vehicle  
 (97) 97 or more  
 (99) Unknown
39. Number of Occupant Forms Submitted 02

**AIR BAG RELATED**

40. Is this an AOPS Vehicle? 1  
 (0) No (includes unknown)  
 (1) Yes - researcher determined  
 (2) VIN determined air bag system  
 (3) VIN determined automatic (passive) belts  
 (4) VIN determined air bag and automatic (passive) belts
41. Air Bag(s) Deployment, First Seat Frontal 5  
 (0) Not equipped or not available  
 (1) No air bags deployed  
*Single Air Bag Vehicle*  
 (2) Driver air bag deployed  
 (3) Driver air bag, unknown if deployed  
*Multiple Air Bag Vehicle*  
 (4) Driver side only deployed  
 (5) Passenger side only deployed  
 (6) Driver and passenger side deployed  
 (7) Driver and passenger side unknown if deployed  
 (8) Air bag(s) deployed, details unknown  
 (9) Unknown
42. Air Bag(s) Deployment, Other Than First Seat Frontal 0  
 (0) Not equipped with an "other" air bag  
 (1) Deployed during accident (as a result of impact)  
 (2) Deployed inadvertently just prior to accident  
 (3) Deployed, details unknown  
 (4) Deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)  
 (5) Unknown if deployed  
 (7) Nondeployed  
 (9) Unknown

Specify type of "other" air bag present: \_\_\_\_\_

**VEHICLE WEIGHT ITEMS**

43. Vehicle Curb Weight 1.730  
 \_\_\_\_\_ Code weight to nearest 10 kilograms.  
 (045) Less than 450 kilograms  
 (610) 6,100 kilograms or more  
 (999) Unknown  
3,984 lbs X .4536 = 1,726 kgs  
 Source: \_\_\_\_\_

44. Vehicle Cargo Weight 0.010  
 \_\_\_\_\_ Code weight to nearest 10 kilograms.  
 (000) Less than 5 kilograms  
 (450) 4,500 kilograms or more  
 (999) Unknown  
11 lbs X .4536 = 5 kgs

Source: Interviewee**ROLLOVER DATA**

45. Rollover 00  
 (00) No rollover (no overturning)  
*Rollover (primarily about the longitudinal axis)*  
 (01-16) Code the number of quarter turns  
 (17) Rollover, 17 or more quarter turns (specify): \_\_\_\_\_  
 (98) Rollover--end-over-end (i.e., primarily about the lateral axis)  
 (99) Rollover (overturn), details unknown
46. Rollover Initiation Type 00  
 (00) No rollover  
 (01) Trip-over  
 (02) Flip-over  
 (03) Turn-over  
 (04) Climb-over  
 (05) Fall-over  
 (06) Bounce-over  
 (07) Collision with another vehicle  
 (08) Other rollover initiation type specify): \_\_\_\_\_  
 (98) Rollover--end-over-end  
 (99) Unknown rollover initiation type
47. Location of Rollover Initiation 0  
 (0) No rollover  
 (1) On roadway  
 (2) On shoulder--paved  
 (3) On shoulder--unpaved  
 (4) On roadside or divided trafficway median  
 (8) Rollover--end-over-end  
 (9) Unknown
48. Rollover Initiation Object Contacted 00  
 (Note: Applicable codes on back of page)
49. Location on Vehicle Where Initial Principal Tripping Force Is Applied 0  
 (0) No rollover  
 (1) Wheels/tires  
 (2) Side plane  
 (3) End plane  
 (4) Undercarriage  
 (5) Other location on vehicle (specify): \_\_\_\_\_  
 (6) Non-contact rollover forces (specify): \_\_\_\_\_  
 (8) Rollover--end-over-end  
 (9) Unknown
50. Direction of Initial Roll 0  
 (0) No rollover  
 (1) Roll right - primarily about the longitudinal axis  
 (2) Roll left - primarily about the longitudinal axis  
 (8) Rollover--end-over-end  
 (9) Unknown roll direction

**OVERRIDE/UNDERRIDE (THIS VEHICLE)**51. Front Override/Underride (this Vehicle) 052. Rear Override/Underride (this Vehicle) 0

- (0) No override/underride, or not an end-to-end impact between two CDS applicable vehicles, and no medium/heavy truck or bus underride

*Override (see specific CDC)**[Between 2 CDS applicable vehicles (Bodytype, GV07 = 1-49)]*

- (1) 1st CDC  
(2) 2nd CDC  
(3) Other not automated CDC (specify):  
\_\_\_\_\_

*Underride (see specific CDC)**[Between 2 CDS applicable vehicles (Bodytype, GV07 = 1-49)]*

- (4) 1st CDC  
(5) 2nd CDC  
(6) Other not automated CDC (specify):  
\_\_\_\_\_

- (7) Medium/heavy truck or bus override (of any configuration)  
(9) Unknown

**HEADING ANGLE AT IMPACT FOR HIGHEST DELTA V**

Values: (000)-(359) Code actual value

- (997) Noncollision  
(998) Impact with object  
(999) Unknown

53. Heading Angle For This Vehicle 0 8 954. Heading Angle For Other Vehicle 0 1 6**RECONSTRUCTION DATA**55. Towed Trailing Unit 0

- (0) No towed unit  
(1) Yes—towed trailing unit  
(9) Unknown

56. Documentation of Trajectory Data for This Vehicle 1

- (0) No  
(1) Yes

57. Post Collision Condition of Tree or Pole (For Highest Delta V) 0

- (0) Not collision (for highest delta V) with tree or pole  
(1) Not damaged  
(2) Cracked/sheared  
(3) Tilted < 45 degrees  
(4) Tilted ≥ 45 degrees  
(5) Uprooted tree  
(6) Separated pole from base  
(7) Pole replaced  
(8) Other (specify):  
\_\_\_\_\_

(9) Unknown

**ACCIDENT RECONSTRUCTION PROGRAMS HIGHEST DELTA V**58. Basis for Total (Resultant) Delta V (highest) 0 1

(00) No vehicle inspection

*Delta V Calculated*

- (01) Reconstruction program  
-damage only routine  
(02) Reconstruction program  
-damage and trajectory routine  
(03) Missing vehicle algorithm

*Delta V Not Calculated*

- (04) At least one vehicle (which may be this vehicle) is beyond the scope of an acceptable reconstruction program, regardless of collision conditions.

*All vehicles within scope (CDC applicable) of reconstruction program but one of the collision conditions is beyond the scope of the reconstruction program or other acceptable reconstruction technique, regardless of adequacy of damage data.*

- (05) Rollover  
(06) Other non-horizontal forces  
(07) Sideswipe type damage  
(08) Severe override  
(09) Yielding object  
(10) Overlapping damage  
(11) All vehicle and collision conditions are within scope of one of the acceptable reconstruction programs, but there is insufficient data available, (specify):  
\_\_\_\_\_  
\_\_\_\_\_

(98) Other, (specify): \_\_\_\_\_  
\_\_\_\_\_

## COMPUTER GENERATED CRASH SEVERITY

59. Total Delta V

01414 Nearest kmph (highest)         Nearest kmph (secondary)

(NOTE: 000 means less than 0.5 kmph)  
 (160) 159.5 kmph and above  
 (999) Unknown

60. Longitudinal Component of Delta V

+0014-14 Nearest kmph (highest)         Nearest kmph (secondary)

(NOTE:   000 means greater than  
 -0.5 kmph and less than +0.5 kmph)  
 (±160) ±159.5 kmph and above  
 (  999) Unknown

61. Lateral Component of Delta V

+0005-5 Nearest kmph (highest)         Nearest kmph (secondary)

(NOTE:   000 means greater than -0.5 kmph  
 and less than +0.5 kmph)  
 (±160) ±159.5 kmph and above  
 (  999) Unknown

62. Energy Absorption

031.30031323 Nearest 100 joules (highest)         Nearest 100 joules (secondary)

(NOTE: 0000 means less than 50 joules)  
 (9997) 999,650 joules or more  
 (9999) Unknown

Highest

63. Impact Speed

998         Nearest kmph (highest)         Nearest kmph (secondary)

(NOTE: 000 means less than 0.5 kmph)  
 (160) 159.5 kmph and above  
 (998) Trajectory algorithm not run  
 (999) Unknown

## DELTA V CONFIDENCE LEVEL

64. Confidence In Reconstruction Program Results (For Highest Delta V)

3

- (0) No reconstruction  
 (1) Collision fits model — results appear reasonable  
 (2) Collision fits model — results appear high  
 (3) Collision fits model — results appear low  
 (4) Borderline reconstruction — results appear reasonable

## OTHER SPEED ESTIMATE

65. Barrier Equivalent Speed

Highest

02121 Nearest kmph (highest)         Nearest kmph (secondary)

(NOTE: 000 means less than 0.5 kmph)  
 (160) 159.5 kmph and above  
 (999) Unknown

IS MISSING VEHICLE ALGORITHM APPLICABLE FOR THIS VEHICLE? [ ] YES [✓] NO

IF YES: IS A COMPLETED PROGRAM SUMMARY INCLUDED? [ ] YES [ ] NO

ESTIMATED DELTA V	VEHICLE INSPECTION
<p>66. Estimated Highest Delta V (Researcher Determined) <u>0</u></p> <p>(0) Reconstruction Delta V coded</p> <p><i>Estimated Delta V</i></p> <p>(1) Less than 10 kmph</p> <p>(2) <math>\geq 10</math> kmph but <math>&lt; 25</math> kmph</p> <p>(3) <math>\geq 25</math> kmph but <math>&lt; 40</math> kmph</p> <p>(4) <math>\geq 40</math> kmph but <math>&lt; 55</math> kmph</p> <p>(5) <math>\geq 55</math> kmph</p> <p><i>Other estimates of damage severity</i></p> <p>(6) Minor</p> <p>(7) Moderate</p> <p>(8) Severe</p> <p>(9) Unknown</p>	<p>67. Type of Vehicle Inspection <u>3</u></p> <p>(0) No inspection</p> <p>(1) Vehicle fully repaired-no damage evident</p> <p>(2) Partial inspection (specify): _____</p> <p>(3) Complete inspection</p>

\*\*\* IF THE CDS APPLICABLE VEHICLE WAS NOT INSPECTED (I.E., GV67=0), \*\*\*

DO NOT COMPLETE THE EXTERIOR AND INTERIOR VEHICLE FORMS

\*\*\* IF GV07 DOES NOT EQUAL 01-49, DO NOT COMPLETE \*\*\*

THE EXTERIOR VEHICLE, INTERIOR VEHICLE,  
OCCUPANT ASSESSMENT, AND OCCUPANT INJURY FORMS.

## EXTERIOR VEHICLE FORM

**NATIONAL ACCIDENT SAMPLING SYSTEM  
CRASHWORTHINESS DATA SYSTEM**

CRASHWORTHINESS DATA SYSTEM	
1. Primary Sampling Unit Number	<u>10</u>
2. Case Number - Stratum	<u>9518</u>
3. Vehicle Number	<u>01</u>

## VEHICLE IDENTIFICATION

VIN S A I N X 2 7 4 5 B C \_\_\_\_\_ Model Year 9 5  
Vehicle Make (specify): JAGUAR Vehicle Model (specify): XJS - CONV.

## LOCATOR

**Locate the end of the damage with respect to the vehicle longitudinal center line or bumper corner for end impacts or an undamaged axle for side impacts.**

Specific Impact No.	Location of Direct Damage	Location of Field L	Location of Max Crush
01	Starts @ (R) BC over	ACROSS front bumper	C-6

### CRUSH PROFILE IN CENTIMETERS

NOTES: Identify the plane at which the C-measurements are taken (e.g., at bumper, above bumper, at sill, above sill, etc.) and label adjustments (e.g., free space).

**Measure C1 to C6 from driver to passenger side in front or rear impacts and rear to front in side impacts.**

Free space value is defined as the distance between the baseline and the original body contour taken at the individual C locations. This may include the following: bumper lead, bumper taper, side protrusion, side taper, etc. Record the value for each C-measurement and maximum crush.

**Use as many lines/columns as necessary to describe each damage profile.**

[illegible]

# ORIGINAL SPECIFICATIONS WORK SHEET

Wheelbase 102.0 inches x 2.54 = 259 cm  
 Overall Length 191.2 inches x 2.54 = 486 cm  
 Maximum Width 69.4 inches x 2.54 = 176 cm  
 Curb Weight 3,805 pounds x 0.4536 = 1,726 kg  
 Average Track <sup>58.6</sup><sub>59.2</sub> 58.9 inches x 2.54 = 150 cm  
 Front Overhang      inches x 2.54 = 100 cm  
 Rear Overhang      inches x 2.54 = 128 cm  
 Undeformed End Width 62.0 inches x 2.54 = 160 cm  
 Engine Size: cyl/displ. 3980 cc x 0.001 = 4.0 L  
 I-6 243 CID x 0.0164 = 4.0 L

4-passenger, 2-door Coupe

## SPECIAL CRASH INVESTIGATION ADDENDUM

Submodel Designation: {specify} XJS Color: {specify} Blue Repair Cost: \$  
 Transmission: {circle} Automatic | Manual Speed: 3-speed 4-speed 5-speed | Other:  
 Steering: {circle} Power-assisted | Manual Type: rack-and-pinion | worm-and-gear | Other  
 {please describe}:  
 Brakes: {circle} Power-assisted | Manual Type: 4-wheel disc | 4-wheel drum | 4-wheel hydraulic  
 | front disc, rear drum | Other:  
 Observed Defects: {specify}  
 Fleet Type: {circle} Private vehicle | Rental vehicle | Leased vehicle | Commercial vehicle | Other  
 {please describe}:



## VEHICLE DAMAGE SKETCH

<b>TIRE—WHEEL DAMAGE</b> a. Rotation physically restricted RF <u>1</u> LF <u>2</u> RR <u>2</u> LR <u>2</u> (1) Yes (2) No (8) NA (9) Unk.		<b>ORIGINAL SPECIFICATIONS</b> Wheelbase <u>259</u> cm Overall Length <u>486</u> cm Maximum Width <u>176</u> cm Curb Weight <u>1726</u> kg Average Track <u>150</u> cm Front Overhang <u>100</u> cm Rear Overhang <u>128</u> cm Undeformed End Width <u>160</u> cm Engine Size: cyl./displ. <u>4.0</u> L		<b>WHEEL STEER ANGLES</b> (For locked front wheels or displaced rear axles only) RF ± _____ ° LF ± _____ ° RR ± _____ ° LR ± _____ ° Within ± 5 degrees
<b>TYPE OF TRANSMISSION</b> <input type="checkbox"/> Manual <input checked="" type="checkbox"/> Automatic		<b>DRIVE WHEELS</b> <input type="checkbox"/> FWD <input checked="" type="checkbox"/> RWD <input type="checkbox"/> 4WD		
		Approximate Cargo Weight <u>0</u> kg		

**MEASUREMENTS IN CENTIMETERS**  
*convertable TOP*

**FRONT VIEW:** Width 151.5, Original Bumper height indicated.

**RIGHT SIDE VIEW:** Overall length 175, POST-CRASH length 262, Bumper corner 90, Stringline 97.

**LEFT SIDE VIEW:** POST-CRASH length 256, Bumper corner 116, Stringline 125. Note: *Direct from ccw rotation* pointing to rear wheel area.

**REAR VIEW:** Width 152, Bumper corner 118, Stringline 127.

**NOTES:** Sketch new penmeter and cross hatch direct damage and single hatch induced damage on all views. Annotate observations which might be useful in reconstructing the accident (e.g., grass in tire bead, direction of striations, scuff on sidewalls, etc.). If pulling trailer, sketch type of trailer and damage received on the back of this page. Annotate any damage caused by extrication such as component removal by torching, prying, or hydraulic shears.

## JAGUAR CARS INC.,

## FOREIGN CAR SECTION

Type of Body	Model	Wheel Base	Dimensions Inches Lt. x Wt. x Ht.	Ship. Wt. lb.	Tax H.P.	P.O.E. West Coast	P.O.E. East Coast
5-PS 4-dr Vanden Plas	XJ6	113.0"	196.4" x 78.9" x 54.3"	4035	30.81	56,750	56,750
Bore & Stroke 3.583"x4.015"; Tax H.P. 30.81; SAE H.P. 219@4750; Torque 273@3650; P.D. 243 cu.in., 4.0 liter							
4-PS 2-dr Coupe	XJS	102.0"	191.2" x 70.6" x 48.6"	3725	30.81	49,750	49,750
2-PS 2-dr Convertible	XJS	102.0"	191.2" x 70.6" x 48.6"	3950	30.81	56,750	56,750

## 1993 JAGUAR RWD V12 6.0 liter Gas Engine(XJRS)

Bore &amp; Stroke; Tax H.P. 60.25; SAE H.P. 318@7; Torque 7; P.D. 366 cu.in., 6.0 liter

Auto. Trans.; EPA Mileage Estimate

4-PS 2-dr Coupe	XJRS	102.0"	191.2" x 70.6" x 48.6"	4050	60.25	73,000	73,000
2-PS 2-dr Convertible	XJRS	102.0"	191.2" x 70.6" x 48.6"	4250	60.25	80,100	80,100

## JAGUAR CARS INC.

## 1994 JAGUAR RWD V6 4.0 liter OHC EFI Gas Engine(AJ6)(24valve)

Bore &amp; Stroke 3.583"x4.015"; Tax H.P. 30.81; SAE H.P. 223@4750; Torque 278@3650; P.D. 243 cu.in., 4.0 liter

Auto. Trans.; EPA Mileage Estimate (XJS) 17/23 (XJ6) 17/24

5-PS 4-dr Sedan	XJ6	113.0"	196.4" x 78.9" x 54.3"	4075	30.81	51,750	51,750
5-PS 4-dr Vanden Plas Sedan	VDP	113.0"	196.4" x 78.9" x 54.3"	4105	30.81	59,400	59,400
Bore & Stroke 3.583"x4.015"; Tax H.P. 30.81; SAE H.P. 219@4750; Torque 273@3650; P.D. 243 cu.in., 4.0 liter							
4-PS 2-dr Coupe	XJS	102.0"	191.2" x 70.6" x 48.7"	3805	30.81	51,950	51,950
2-PS 2-dr Convertible	XJS	102.0"	191.2" x 70.6" x 48.7"	3980	30.81	58,450	58,450
4-PS 2-dr Convertible	XJS	102.0"	191.2" x 70.6" x 48.7"	4022	30.81	59,950	59,950

## 1994 JAGUAR RWD V12 6.0 SOHC FI liter Gas Engine(XJRS)

Bore &amp; Stroke 3.54X3.1; Tax H.P. 60.15; SAE H.P. 301@7; Torque 7; P.D. 366 cu.in., 6.0 liter

Auto. Trans.; EPA Mileage Estimate 12/16

4-PS 4-dr Sedan	XJ12	102.0"	191.2" x 70.6" x 48.6"	4445	60.15	73,200	73,200
Bore & Stroke 3.54X3.1; Tax H.P. 60.15; SAE H.P. 278@5400; Torque 334@2800; P.D. 366 cu.in., 6.0 liter							
4-PS 2-dr Coupe	XJS	102.0"	191.2" x 70.6" x 48.6"	4053	60.15	69,950	69,950
2-PS 2-dr Convertible	XJS	102.0"	191.2" x 70.6" x 48.6"	4306	60.15	79,950	79,950

Note: all models have both Passenger &amp; Driver Side Air Bags

## JAGUAR CARS INC.

## 1995 JAGUAR RWD I6 4.0 liter OHC EFI Gas Engine(XJ16)(24valve)

Bore &amp; Stroke 3.583"x4.015"; Tax H.P. 30.81; SAE H.P. 245@4700; Torque 289@4000; 243 cu.in., 3980 cc

Auto. Trans.; EPA Mileage Estimate

5-PS 4-dr Sedan	XJ6	113.0"	197.8" x 70.8" x 53.1"	4080	30.81	53,450	53,450
5-PS 4-dr Vanden Plas Sedan	VDP	113.0"	197.8" x 70.8" x 53.1"	4105	30.81	62,200	62,200

## 1995 JAGUAR RWD I6 4.0 liter OHC EFI Gas Engine(XJ16)(24valve)

Bore &amp; Stroke 3.583"x4.015"; Tax H.P. 30.81; SAE H.P. 237@4700; Torque 282@4000; 243 cu.in., 3980 cc

Auto. Trans.; EPA Mileage Estimate

4-PS 2-dr Coupe	XJS	102.0"	191.2" x 69.4" x 48.7"	3805	30.81	53,400	53,400
2-PS 2-dr Convertible	XJS	102.0"	191.2" x 69.4" x 48.7"	4022	30.81	61,550	61,550

## 1995 JAGUAR RWD I6 4.0 liter Supercharged OHC EFI Gas Engine(XJ16)(24valve)

Bore &amp; Stroke 3.583"x4.015"; Tax H.P. 30.81; SAE H.P. 322@5000; Torque 378@3050; 243 cu.in., 3980 cc

Auto. Trans.; EPA Mileage Estimate

5-PS 4-dr Sedan	XJR	113.0"	197.8" x 70.8" x 53.1"	4215	30.81	65,000	65,000
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## 1995 JAGUAR RWD V12 6.0 SOHC EFI liter Gas Engine(XJRS)(24 valve)

Bore &amp; Stroke 3.54X3.1; Tax H.P. 60.15; SAE H.P. 313@5350; Torque 353@3750; 366 cu.in., 5994 cc

Auto. Trans.; EPA Mileage Estimate

4-PS 4-dr Sedan	XJ12	102.0"	191.2" x 69.4" x 48.7"	4445	60.15	77,250	77,250
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## 1995 JAGUAR RWD V12 6.0 SOHC EFI liter Gas Engine(XJRS)(24 valve)

Bore &amp; Stroke 3.54X3.1; Tax H.P. 60.15; SAE H.P. 301@5400; Torque 351@2800; 366 cu.in., 5994 cc

Auto. Trans.; EPA Mileage Estimate

4-PS 2-dr Coupe	XJS	102.0"	191.2" x 69.4" x 48.7"	4053	60.15	72,350	72,350
2-PS 2-dr Convertible	XJS	102.0"	191.2" x 69.4" x 48.7"	4306	60.15	82,550	82,550

Options Jaguar: Destination Charges-\$580; Luxury Pkg (XJ6)-\$2900; All Weather Pkg (XJ6/VDP)-\$2000 (4.0LXJS)-\$300 (6.0LXJS)-std; CD Changer (XJ6/VDP/4.0LXJS)-\$800 6.0LXJS-std; Premium Sound System w/CD (XJ6/VDP)-\$1800; Wheels (Chromed)-\$1500; Full Size Spare Tire-\$100; Bonnet Lifter-\$200; Engine Block Heater-\$100; Autolux Leather-\$250; Non-Standard Order Option-\$2000; Sport Suspension (XJS)-\$500

## KIA Motors America Inc.

## 1994 KIA Sephia L4 cyl 1.6 liter SOHC MPFI Gas Engine(16 valve)

Bore &amp; Stroke 3.07x3.29; Tax H.P. 15.08; SAE H.P. 88@5000; Torque 98@4000; 97.5 cu.in., 1.6 liter

Man. Trans.; EPA Mileage Estimate 27/33

4-PS 4-dr Sedan RS	11401	98.4"	170.7" x 68.6" x 54.7"	2339	15.08	8,495	8,495
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## CDC WORKSHEET

**CODES FOR OBJECT CONTACTED**

**(01-30) – Vehicle Number**

## Noncollision

- (31) Overturn — rollover (excludes end-over-end)  
(32) Rollover—end-over-end  
(33) Fire or explosion  
(34) Jackknife  
(35) Other intraunit damage (specify):

- (36) Noncollision injury  
(38) Other noncollision (specify):

- (39) Noncollision — details unknown**

### Collision With Fixed Object

- (41) Tree ( $\leq 10$  cm in diameter)  
(42) Tree ( $> 10$  cm in diameter)  
(43) Shrubbery or bush  
(44) Embankment

- (45) Breakaway pole or post (any diameter)**

### Nonbreakaway Pole or Post

- (50) Pole or post ( $\leq 10$  cm in diameter)  
 (51) Pole or post ( $> 10$  cm but  $\leq 30$  cm in diameter)  
 (52) Pole or post ( $> 30$  cm in diameter)  
 (53) Pole or post (diameter unknown)

- (54) Concrete traffic barrier  
(55) Impact attenuator  
(56) Other traffic barrier (includes guardrail)  
(specify):

- (57) Fence  
(58) Wall  
(59) Building  
(60) Ditch or culvert  
(61) Ground  
(62) Fire hydrant  
(63) Curb  
(64) Bridge  
(68) Other fixed object (specify):  

---

(69) Unknown fixed object

### Collision with Nonfixed Object

- (70) Passenger car, light truck, van, or other vehicle not in-transport  
(71) Medium/heavy truck or bus not in-transport  
(72) Pedestrian  
(73) Cyclist or cycle  
(74) Other nonmotorist or conveyance

- (75) Vehicle occupant  
(76) Animal  
(77) Train  
(78) Trailer, disconnected in transport  
(79) Object fell from vehicle in-transport  
(88) Other nonfixed object (specify):

- (89) Unknown nonfixed object  
(98) Other event (specify):  
(99) Unknown event or object

## DEFORMATION CLASSIFICATION BY EVENT NUMBER

[illegible]

## COLLISION DEFORMATION CLASSIFICATION

## HIGHEST DELTA "V"

Accident Event Sequence Number	Object Contacted	(1) (2) Direction of Force	(3) Deformation Location	(4) Longitudinal or Lateral Location	(5) Vertical or Lateral Location	(6) Type of Damage Distribution	(7) Deformation Extent
4. <u>01</u>	5. <u>02</u>	6. <u>01</u>	7. <u>F</u>	8. <u>Z</u>	9. <u>E</u>	10. <u>W</u>	11. <u>01</u>

## Second Highest Delta "V"

12. <u>    </u>	13. <u>    </u>	14. <u>    </u>	15. <u>    </u>	16. <u>    </u>	17. <u>    </u>	18. <u>    </u>	19. <u>    </u>
-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------

## CRUSH PROFILE IN CENTIMETERS

The crush profile for the damage described in the CDC(s) above should be documented in the appropriate space below. (ALL MEASUREMENTS ARE IN CENTIMETERS.)

## HIGHEST DELTA "V"

20. L	21. C <sub>1</sub>	C <sub>2</sub>	C <sub>3</sub>	C <sub>4</sub>	C <sub>5</sub>	C <sub>6</sub>	22. ±D
<u>160</u>	<u>000</u>	<u>001</u>	<u>008</u>	<u>016</u>	<u>026</u>	<u>033</u>	<u>⊕ 033</u>

## Second Highest Delta "V"

23. L	24. C <sub>1</sub>	C <sub>2</sub>	C <sub>3</sub>	C <sub>4</sub>	C <sub>5</sub>	C <sub>6</sub>	25. ±D
<u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
<u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>

## 26. Undeformed End Width

(Coded when highest severity impact is an end plane impact.)

Code to the nearest centimeter

(250) 250 centimeters or more

(998) No highest severity end plane impact

(999) Unknown

160

## 27. Direct Damage Width

(For highest severity impact)

Code to the nearest centimeter

(250) 250 centimeters or more

(999) Unknown

094

## 28. Original Wheelbase

Code to the nearest centimeter

(650) 650 centimeters or more

(999) Unknown

inches X 2.54 = centimeters

259

## 29. Original Average Track Width

Code to the nearest centimeter

(185) 185 centimeters or more

(999) Unknown

inches X 2.54 = centimeters

150

**FUEL SYSTEM**

30. Are CDCs Documented  
but Not Coded on The  
Automated File?

- (0) No  
(1) Yes

31. Researcher's Assessment of Vehicle  
Disposition

- (0) Not towed due to vehicle damage  
(1) Towed due to vehicle damage  
(9) Unknown

32. Is This A Multi-Stage Manufactured Vehicle  
And/Or A Certified Altered Vehicle?

- (0) No post manufacturer modifications  
(1) Yes - post manufacturer modifications  
(specify): \_\_\_\_\_

(Include photograph of CERTIFICATION  
PLACARD in case report)

- (9) Unknown if vehicle is modified

35. Location of Fuel Tank-1 Filler Cap

36. Location of Fuel Tank-2 Filler Cap

- (0) No fuel tank  
(1) On back plane  
(2) Aft of center of the rear wheels (rear axle)  
on left side plane  
(3) Aft of center of the rear wheels (rear axle)  
on right side plane  
(4) Forward of center of the rear wheels (rear  
axle) on left side plane  
(5) Forward of center of the rear wheels (rear  
axle) on right side plane  
(6) Over the center of the rear wheels (rear  
axle) on left side plane  
(7) Over the center of the rear wheels (rear  
axle) on right side plane  
(8) Other (specify): Aft of center of REAR  
(9) Unknown wheels, on top of REAR  
Quarter panel

37. Type of Fuel Tank-1

38. Type of Fuel Tank-2

- (0) No fuel tank (electrical vehicle)  
(1) Metallic  
(2) Non-metallic  
(9) Unknown

39. Location of Fuel Tank-1

40. Location of Fuel Tank-2

- (0) No fuel tank  
(1) Aft of center of the rear wheels (rear axle)  
centered  
(2) Aft of center of the rear wheels (rear axle)  
left side  
(3) Aft of center of the rear wheels (rear axle)  
right side  
(4) Forward of center of the rear wheels (rear  
axle) centered  
(5) Forward of center of the rear wheels (rear  
axle) left side  
(6) Forward of center of the rear wheels (rear  
axle) right side  
(7) Over center of the rear wheels (rear axle)  
(8) Other (specify): \_\_\_\_\_  
(9) Unknown

41. Damage to Fuel Tank-1

42. Damage to Fuel Tank-2

- (0) No fuel tank  
(1) No damage to fuel tank  
(2) Deformed, no seam failure  
(3) Deformed, with a seam failure  
(4) Punctured  
(5) Lacerated (ripped)  
(6) Abraded (scraped)  
(7) Filler neck separation from the fuel tank  
(8) Other damage (specify): \_\_\_\_\_  
(9) Unknown

**FIRE OCCURRENCE**

33. Fire Occurrence

- (0) No fire

Yes, fire occurred

- (1) Minor  
(2) Major  
(9) Unknown

34. Origin of Fire

- (0) No fire  
(1) Vehicle exterior (front, side, back, top)  
(2) Exhaust system  
(3) Fuel tank (and other fuel retention  
system parts)  
(4) Engine compartment  
(5) Cargo/trunk compartment  
(6) Instrument panel  
(7) Passenger compartment area  
(8) Other location (specify): \_\_\_\_\_

- (9) Unknown

<p>43. Leakage Location of Fuel System-1 <span style="float: right;"><u>1</u></span></p> <p>44. Leakage Location of Fuel System-2 <span style="float: right;"><u>0</u></span></p> <p>(0) No fuel tank (1) No fuel leakage</p> <p><i>Primary Area Of Leakage</i></p> <p>(2) Tank (3) Filler neck (4) Cap (5) Lines/pump/filter (6) Vent/emission recovery (8) Other (specify): _____ (9) Unknown</p> <p>45. Fuel Type-1 <span style="float: right;"><u>0 1</u></span></p> <p>46. Fuel Type-2 <span style="float: right;"><u>0 0</u></span></p> <p><i>Single Fuel Type</i></p> <p>(00) No fuel tank (01) Gasoline (02) Diesel (03) CNG (Compressed Natural Gas) (04) LPG (Liquid Petroleum Gas) also known as Propane (05) LNG (Liquid Natural Gas) (06) Methanol (M100 or M85) (07) Ethanol (E100 or E85) (08) Other (Hydrogen or others) (specify): _____</p> <p><i>Electric Powered or Electric/Solar Powered Vehicles</i></p> <p>(10) Lead Acid Battery (11) Nickel-Iron Battery (12) Nickel-Cadmium Battery (13) Sodium Metal Chloride Battery (14) Sodium Sulfur Battery (18) Other (Specify): _____</p> <p>(98) Other Hybrid (specify): _____</p> <p>(99) Unknown fuel type</p>	<p>47. Is This Vehicle Equipped With More Than Two Fuel Tanks? <span style="float: right;"><u>0</u></span></p> <p>(0) No (one or two tanks only)</p> <p><i>Yes - More Than Two Tanks</i></p> <p>(1) Yes -- <u>no damage</u> to any tank or filler cap and <u>no fuel system leakage</u> (2) Yes -- <u>no damage</u> to any tank or filler cap but <u>there is fuel system leakage</u> (specify leakage location): _____ (3) Yes -- <u>damage</u> to an additional tank or filler cap and <u>there is fuel system leakage</u> (specify the following):  Type of tank _____  Tank location _____  Filler cap location _____  Tank damage _____  Location of leakage _____  Type of fuel _____  (9) Unknown if more than two tanks</p>
<p><b>COMMENTS</b></p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	
<p>*** STOP: IF THE CDS APPLICABLE VEHICLE WAS NOT TOWED ***</p> <p>(GV10=0)</p> <p>DO NOT COMPLETE THE INTERIOR VEHICLE FORM.</p>	



## INTERIOR VEHICLE FORM

1. Primary Sampling Unit Number

2. Case Number - Stratum

3. Vehicle Number

### INTEGRITY

4. Passenger Compartment Integrity 00  
(00) No integrity loss

Yes, Integrity Was Lost Through

- (01) Windshield
- (02) Door (side)
- (03) Door/hatch (back door)
- (04) Roof
- (05) Roof glass
- (06) Side window
- (07) Rear window (backlight)
- (08) Roof and roof glass
- (09) Windshield and door (side)
- (10) Windshield and roof
- (11) Side and rear window (side window and backlight)
- (12) Windshield and side window
- (13) Door and side window
- (98) Other combination of above (specify):

(99) Unknown

Door, Tailgate or Hatch Opening

5. LF 1 6. RF 1 7. LR 0 8. RR 0 9. TG/H 0

- (0) No door/gate/hatch
- (1) Door/gate/hatch remained closed and operational
- (2) Door/gate/hatch came open during collision
- (3) Door/gate/hatch jammed shut
- (8) Other (specify):

(9) Unknown

Damage/Failure Associated with Door, Tailgate or Hatch Opening in Collision. If IV05-IV09 ≠ 2, Then code 0

10. LF 0 11. RF 0 12. LR 0 13. RR 0 14. TG/H 0

- (0) No door/gate/hatch or door not opened

Door, Tailgate or Hatch Came Open During Collision

- (1) Door operational (no damage)
- (2) Latch/striker failure due to damage
- (3) Hinge failure due to damage
- (4) Door structure failure due to damage
- (5) Door support (i.e., pillar, sill, roof side rail, etc.) failure due to damage
- (6) Latch/striker and hinge failure due to damage
- (8) Other failure (specify):

(9) Unknown

### GLAZING

Type of Window/Windshield Glazing

15. WS 1 16. LF 2 17. RF 2 18. LR 2 19. RR 2  
20. BL 2 21. Roof 0 22. Other 0

- (0) No glazing
- (1) AS-1 - Laminated
- (2) AS-2 - Tempered
- (3) AS-3 - Tempered-tinted (original)
- (4) AS-2 - Tempered-with after market tint
- (5) AS-3 - Tempered-tinted (with additional after market tint)
- (6) AS-14 - Glass/Plastic
- (7) Glazing removed prior to accident
- (8) Other (specify):

(9) Unknown

Window Precrash Glazing Status

23. WS 1 24. LF 2 25. RF 2 26. LR 1 27. RR 1  
28. BL 1 29. Roof 0 30. Other 0

- (0) No glazing
- (1) Fixed
- (2) Closed
- (3) Partially opened
- (4) Fully opened
- (7) Glazing removed prior to accident
- (9) Unknown

Glazing Damage from Impact Forces

31. WS 1 32. LF 1 33. RF 1 34. LR 1 35. RR 1  
36. BL 1 37. Roof 0 38. Other 0

- (0) No glazing
- (1) No glazing damage from impact forces
- (2) Glazing in place and cracked from impact forces
- (3) Glazing in place and holed from impact forces
- (4) Glazing out-of-place (cracked or not) and not holed from impact forces
- (5) Glazing out-of-place and holed from impact forces
- (6) Glazing disintegrated from impact forces
- (7) Glazing removed prior to accident
- (9) Unknown if damaged

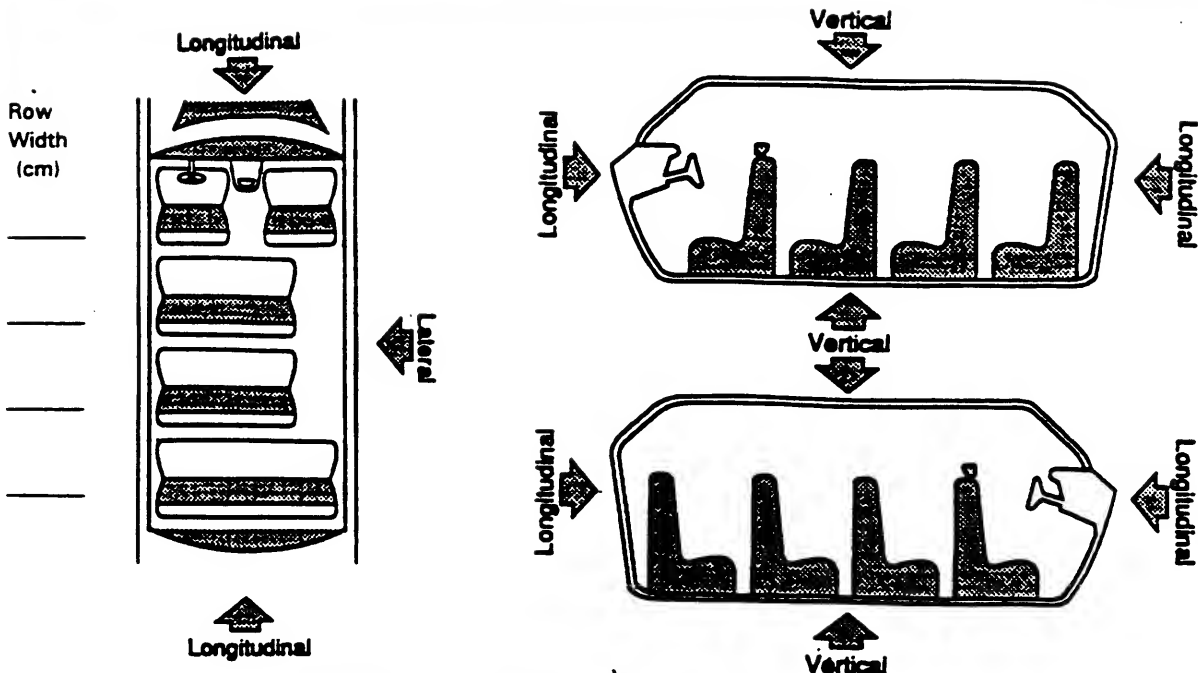
Glazing Damage from Occupant Contact

39. WS 1 40. LF 1 41. RF 1 42. LR 1 43. RR 1  
44. BL 1 45. Roof 0 46. Other 0

- (0) No glazing
- (1) No occupant contact to glazing
- (2) Glazing contacted by occupant but no glazing damage
- (3) Glazing in place and cracked by occupant contact
- (4) Glazing in place and holed by occupant contact
- (5) Glazing out-of-place (cracked or not) by occupant contact and not holed by occupant contact
- (6) Glazing out-of-place by occupant contact and holed by occupant contact
- (7) Glazing removed prior to accident
- (8) Glazing disintegrated by occupant contact
- (9) Unknown if contacted by occupant

# INTRUSION WORKSHEET

Note: Sketch intruded areas



NONE visible

LOCATION OF INTRUSION	INTRUDED COMPONENT	(All Measurements Are in Centimeters)			INTRUSION	DOMINANT CRUSH DIRECTION
		COMPARISON VALUE	INTRUDED VALUE	=		
		-		=		
		-		=		
		-		=		
		-		=		
		-		=		
		-		=		
		-		=		
		-		=		
		-		=		
		-		=		
		-		=		
		-		=		
		-		=		
		-		=		
		-		=		
		-		=		

Document no more than the 15 most severe intrusions



**OCCUPANT AREA INTRUSION**

Note: If no intrusions, leave variables IV47-IV86 blank.

	Location of Intrusion	Intruding Component	Magnitude of Intrusion	Dominant Crush Direction
1st	47. _____	48. _____	49. _____	50. _____
2nd	51. _____	52. _____	53. _____	54. _____
3rd	55. _____	56. _____	57. _____	58. _____
4th	59. _____	60. _____	61. _____	62. _____
5th	63. _____	64. _____	65. _____	66. _____
6th	67. _____	68. _____	69. _____	70. _____
7th	71. _____	72. _____	73. _____	74. _____
8th	75. _____	76. _____	77. _____	78. _____
9th	79. _____	80. _____	81. _____	82. _____
10th	83. _____	84. _____	85. _____	86. _____

**LOCATION OF INTRUSION**

Front Seat  
 (11) Left  
 (12) Middle  
 (13) Right

Second Seat  
 (21) Left  
 (22) Middle  
 (23) Right

Third Seat  
 (31) Left  
 (32) Middle  
 (33) Right

Fourth Seat  
 (41) Left  
 (42) Middle  
 (43) Right

(97) Catastrophic  
 (98) Other enclosed area (specify)

(99) Unknown

**INTRUDING COMPONENT***Interior Components*

- (01) Steering assembly
- (02) Instrument panel left
- (03) Instrument panel center
- (04) Instrument panel right
- (05) Toe pan
- (06) A (A1/A2)-pillar
- (07) B-pillar
- (08) C-pillar
- (09) D-pillar
- (10) Side panel - forward of the A1/A2-pillar
- (11) Door panel (side)
- (12) Side panel - rear of the B-pillar
- (13) Roof (or convertible top)
- (14) Roof side rail
- (15) Windshield
- (16) Windshield header
- (17) Window frame
- (18) Floor pan (includes sill)
- (19) Backlight header
- (20) Front seat back
- (21) Second seat back
- (22) Third seat back
- (23) Fourth seat back
- (24) Fifth seat back
- (25) Seat cushion
- (26) Back door/panel (e.g., tailgate)
- (27) Other interior component (specify): \_\_\_\_\_

*Exterior Components*

- (30) Hood
- (31) Outside surface of this vehicle (specify): \_\_\_\_\_
- (32) Other exterior object in the environment (specify): \_\_\_\_\_
- (33) Unknown exterior object
- (97) Catastrophic
- (98) Intrusion of unlisted component(s) (specify): \_\_\_\_\_
- (99) Unknown

**MAGNITUDE OF INTRUSION**

- (1)  $\geq 3$  centimeters but  $< 8$  centimeters
- (2)  $\geq 8$  centimeters but  $< 15$  centimeters
- (3)  $\geq 15$  centimeters but  $< 30$  centimeters
- (4)  $\geq 30$  centimeters but  $< 46$  centimeters
- (5)  $\geq 46$  centimeters but  $< 61$  centimeters
- (6)  $\geq 61$  centimeters
- (7) Catastrophic
- (9) Unknown

**DOMINANT CRUSH DIRECTION**

- (1) Vertical
- (2) Longitudinal
- (3) Lateral
- (7) Catastrophic
- (9) Unknown

## STEERING RIM/SPOKE DEFORMATION

(All Measurements Are in Centimeters)

COMPARISON VALUE	—	DAMAGE VALUE	=	DEFORMATION
------------------	---	--------------	---	-------------

	—		=	
--	---	--	---	--

	—		=	
--	---	--	---	--

	—		=	
--	---	--	---	--

	—		=	
--	---	--	---	--

No DEFORMATION

## STEERING COLUMN

## INSTRUMENT PANEL

## 87. Steering Column Type

- (1) Fixed column  
 (2) Tilt column  
 (3) Telescoping column  
 (4) Tilt and telescoping column  
 (8) Other column type (specify):  
 (9) Unknown

## 88. Tilt Steering Column Adjustment

- (0) No tilt steering column  
 (1) Full up  
 (2) Between full up and center  
 (3) Center  
 (4) Between center and full down  
 (5) Full down  
 (9) Unknown

## 89. Telescoping Steering Column Adjustment

- (0) No telescoping steering column  
 (1) Full back  
 (2) Between full back and midpoint  
 (3) Midpoint  
 (4) Between midpoint and full forward  
 (5) Full forward  
 (9) Unknown

## 90. Steering Rim/Spoke Deformation

- Code actual measured  
 deformation to the nearest centimeter  
 (00) No steering rim deformation  
 (01-14) Actual measured value in centimeters  
 (15) 15 centimeters or more  
 (98) Observed deformation cannot be measured  
 (99) Unknown

## 91. Location of Steering Rim/Spoke Deformation

- (00) No steering rim deformation

## Quarter Sections

- (01) Section A  
 (02) Section B  
 (03) Section C  
 (04) Section D



## Half Sections

- (05) Upper half of rim/spoke  
 (06) Lower half of rim/spoke  
 (07) Left half of rim/spoke  
 (08) Right half of rim/spoke



- (09) Complete steering wheel collapse  
 (10) Undetermined location  
 (99) Unknown

## 92. Odometer Reading

\_\_\_\_\_ kilometers  
 Code to the nearest 1,000 kilometers  
 (000) No odometer  
 (001) Less than 1,500 kilometers  
 (500) 499,500 kilometers or more  
 (999) Unknown  
 --- 4722 miles X 1.6093 = --- 7599 kilometers

Source: odometer insp.

## 93. Instrument Panel Damage from Occupant Contact?

- (0) No  
 (1) Yes  
 (9) Unknown

## 94. Type of Knee Bolster Covering

- (0) No knee bolster  
 (1) Padded  
 (2) Rigid plastic  
 (8) Other (specify):  
 (9) Unknown

## 95. Knee Bolsters Deformed from Occupant Contact?

- (0) No knee bolster  
 (1) No deformation  
 (2) Yes - deformation  
 (9) Unknown

## 96. Did Glove Compartment Door Open During Collision(s)?

- (0) No glove compartment door  
 (1) No - door did not open  
 (2) Yes - door opened  
 (9) Unknown

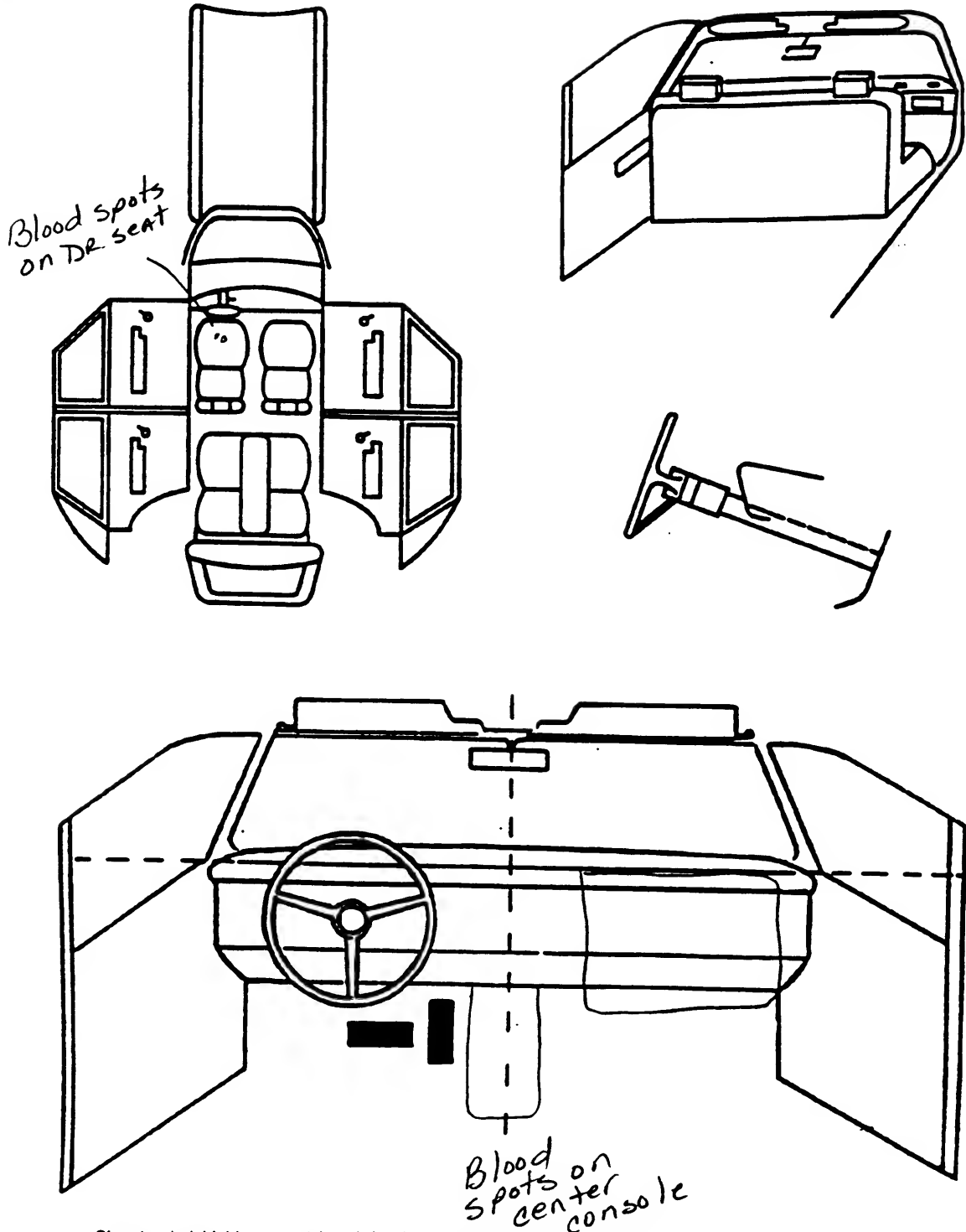
## 97. Adaptive (Assistive) Driving Equipment

- (0) No adaptive driving equipment  
 (1) Adaptive driving equipment installed (Check all that apply.)  
 [ ] Hand controls for braking/acceleration  
 [ ] Steering control devices (attached to OEM steering wheel)  
 [ ] Steering knob attached to steering wheel  
 [ ] Low effort power steering (unit or device)  
 [ ] Replacement steering wheel (i.e., reduced diameter)  
 [ ] Joy-stick steering controls  
 [ ] Wheelchair tie-downs  
 [ ] Modification to seat belts (specify):  
 [ ] Additional or relocated switches (specify):  
 [ ] Raised roof  
 [ ] Wall-mounted head rest (used behind wheelchair)  
 [ ] Other adaptive device (specify):

(9) Unknown

## VEHICLE INTERIOR SKETCHES

Note area of ejection/entrapment



Sketch windshield contact(s) and the damaged area(s) on the instrument panel outline (e.g., radio, glove compartment, damage to instrument panel structure.  
 Cross hatch contact points, draw spider webs or use other annotation as may be appropriate.  
 Annotate the contacted area with a letter (begin with A) and list on the Points of Occupant Contact page.

## POINTS OF OCCUPANT CONTACT

Contact	Interior Component Contacted	Occupant No. If Known	Body Region If Known	Supporting Physical Evidence	Confidence Level of Contact Point
A	180	2	Face	Blood / Skin Transfer	1
B					
C					
D					
E					
F					
G					
H					
I					
J					
K					
L					
M					
N					

## FRONT

- (001) Windshield  
 (002) Mirror  
 (003) Sunvisor  
 (004) Steering wheel rim  
 (005) Steering wheel hub/spoke  
 (006) Steering wheel (combination of codes 004 and 005)  
 (007) Steering column, transmission selector lever, other attachment  
 (008) Cellular telephone or CB radio  
 (009) Add on equipment (e.g., tape deck, air conditioner)  
 (010) Left instrument panel and below  
 (011) Center instrument panel and below  
 (012) Right instrument panel and below  
 (013) Glove compartment door  
 (014) Knee bolster  
 (015) Windshield including one or more of the following: front header, A (A1/A2)-pillar, instrument panel, mirror, or steering assembly (driver side only)  
 (016) Windshield including one or more of the following: front header, A (A1/A2)-pillar, instrument panel, or mirror (passenger side only)  
 (017) Windshield reinforced by exterior object, (specify):  
 (019) Other front object (specify):

## CODES FOR INTERIOR COMPONENTS

## LEFT SIDE

- (051) Left side interior surface, excluding hardware or armrests  
 (052) Left side hardware or armrest  
 (053) Left A (A1/A2)-pillar  
 (054) Left B-pillar  
 (055) Other left pillar (specify):  
 (056) Left side window glass  
 (057) Left side window frame  
 (058) Left side window sill  
 (059) Left side window glass including one or more of the following: frame, window sill, A (A1/A2)-pillar, B-pillar, or roof side rail.  
 (060) Other left side object (specify):

## RIGHT SIDE

- (101) Right side interior surface, excluding hardware or armrests  
 (102) Right side hardware or armrest  
 (103) Right A (A1/A2)-pillar  
 (104) Right B-pillar  
 (105) Other right pillar (specify):  
 (106) Right side window glass  
 (107) Right side window frame  
 (108) Right side window sill  
 (109) Right side window glass including one or more of the following: frame, window sill, A (A1/A2)-pillar, B-pillar, or roof side rail.  
 (110) Other right side object (specify):

## INTERIOR

- (151) Seat, back support  
 (152) Belt restraint webbing/buckle  
 (153) Belt restraint B-pillar or door frame attachment point  
 (154) Other restraint system component (specify):  
 (155) Head restraint system  
 (160) Other occupants (specify):  
 (161) Interior loose objects  
 (162) Child safety seat (specify):  
 (163) Other interior object (specify):

## AIR BAG

- (170) Air bag-driver side  
 (175) Air bag compartment cover-driver side  
 (180) Air bag-passenger side  
 (185) Air bag compartment cover-passenger side  
 (190) Other air bag (specify)  
 (195) Other air bag compartment cover (specify)

## ROOF

- (201) Front header  
 (202) Rear header  
 (203) Roof left side rail  
 (204) Roof right side rail  
 (205) Roof or convertible top

## FLOOR

- (251) Floor (including toe pan)  
 (252) Floor or console mounted transmission lever, including console  
 (253) Parking brake handle  
 (254) Foot controls including parking brake

## REAR

- (301) Backlight (rear window)  
 (302) Backlight storage rack, door, etc.  
 (303) Other rear object (specify):

## ADAPTIVE (ASSISTIVE) DRIVING EQUIPMENT

- (401) Hand controls for braking/acceleration  
 (402) Steering control devices (attached to OEM steering wheel)  
 (403) Steering knob attached to steering wheel  
 (405) Replacement steering wheel (i.e., reduced diameter)  
 (406) Joy stick steering controls  
 (407) Wheelchair tie-downs  
 (408) Modification to seat belts, (specify):  
 (409) Additional or relocated switches, (specify):  
 (410) Raised roof  
 (411) Wall mounted head rest (used behind wheel chair)  
 (412) Other adaptive device (specify):

## CONFIDENCE LEVEL OF CONTACT POINT

- (1) Certain  
 (2) Probable  
 (3) Possible  
 (9) Unknown

# MANUAL RESTRAINTS

**NOTES:** Encode the applicable data for each seat position in the vehicle. The attribute for the variable may be found below. Restraint systems should be assessed during the vehicle inspection then coded on the Occupant Assessment Form. If a Child safety seat is present, encode the data on the back of this page. If the vehicle has automatic restraints available, encode the appropriate data on the back of the previous page.

		Left	Center	Right
FIRST	Availability	4	/	4
	Evidence of usage	04		04
	Used in this crash?	04		14
	Proper Use	1		9
	Failure Modes	1		1
	Anchorage Adjustment	1		1
SECOND	Availability	4	/	4
	Evidence of usage	04		04
	Used in this crash?	00		00
	Proper Use	0		0
	Failure Modes	0		0
	Anchorage Adjustment	1		1
OTHER	Availability			
	Evidence of usage			
	Used in this crash?			
	Proper Use			
	Failure Modes			
	Anchorage Adjustment			

## Manual (Active) Belt System Availability

- (0) None available
- (1) Belt removed/destroyed
- (2) Shoulder belt
- (3) Lap belt
- (4) Lap and shoulder belt
- (5) Belt available - type unknown

## Integral Belt Partially Destroyed

- (6) Shoulder belt (lap belt destroyed/removed)
- (7) Lap belt (shoulder belt destroyed/removed)
- (8) Other belt (specify): \_\_\_\_\_
- (9) Unknown

## Manual (Active) Belt System Use

- (00) None used, not available, or belt removed/destroyed
- (01) Inoperable (specify): \_\_\_\_\_

- (02) Shoulder belt
- (03) Lap belt
- (04) Lap and shoulder belt
- (05) Belt used - type unknown
- (08) Other belt used (specify): \_\_\_\_\_

- (12) Shoulder belt used with child safety seat
- (13) Lap belt used with child safety seat
- (14) Lap and shoulder belt used with child safety seat
- (15) Belt used with child safety seat type unknown
- (18) Other belt used with child safety seat (specify): \_\_\_\_\_
- (99) Unknown if belt used

## Proper Use of Manual (Active) Belts

- (0) None used or not available
- (1) Belt used properly
- (2) Belt used properly with child safety seat

## Belt Used Improperly

- (3) Shoulder belt worn under arm
- (4) Shoulder belt worn behind back or seat
- (5) Belt worn around more than one person
- (6) Lap belt worn on abdomen
- (7) Lap belt or lap and shoulder belt used improperly with child safety seat (specify): \_\_\_\_\_
- (8) Other improper use of manual belt system (specify): \_\_\_\_\_
- (9) Unknown

## Manual (Active) Belt Failure Modes During Accident

- (0) No manual belt used or not available
- (1) No manual belt failure(s)
- (2) Torn webbing (stretched webbing not included)
- (3) Broken buckle or latchplate
- (4) Upper anchorage separated
- (5) Other anchorage separated (specify): \_\_\_\_\_
- (6) Broken retractor
- (7) Combination of above (specify): \_\_\_\_\_
- (8) Other manual belt failure (specify): \_\_\_\_\_
- (9) Unknown

## Shoulder Belt Upper Anchorage Adjustment

- (0) No shoulder belt
- (1) No upper anchorage adjustment for shoulder belt

## Adjustable shoulder Belt Upper Anchorage

- (2) In full up position
- (3) In mid position
- (4) In full down position
- (5) Position unknown
- (9) Unknown if position has adjustable upper anchorage adjustment

Driver's belt won't retract. Stuck

## AUTOMATIC RESTRAINTS

NOTES: Encode the data for each applicable front seat position. The attribute for the variables may be found below. Restraint systems should be assessed during the vehicle inspection then coded on the Occupant Assessment Form.

## AIR BAGS

		Left Front	Right Front	Other
FIRST	Availability/Function	/	/	
	Deployment	7	/	
	Failure	/	/	

<b>Air Bag System Availability/Function</b> (0) Not equipped/not available (1) Air bag  <i>Non-functional</i> (2) Air bag disconnected (specify): (3) Air bag not reinstalled (9) Unknown  <b>Are There Indications of Air Bag System Failure? (This Occupant Position)</b> (0) Not equipped/not available (1) No (2) Yes (specify): (9) Unknown	<b>Frontal Air Bag System Deployment (This Occupant Position)</b> (0) Not equipped/not available (1) Deployed during accident (as a result of impact) (2) Deployed inadvertently just prior to accident (3) Deployed, accident sequence undetermined (4) Deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical) (5) Unknown if deployed (7) Nondeployed (9) Unknown	<b>Air Bag(s) Deployment, Other Than First Seat Frontal (This Occupant Position)</b> (0) Not equipped with an "other" air bag (1) Deployed during accident (as a result of impact) (2) Deployed inadvertently just prior to accident (3) Deployed, details unknown (4) Deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical) (5) Unknown if deployed (7) Nondeployed (9) Unknown
---	--	--

## AUTOMATIC BELTS

		Left	Right
FIRST	Availability/Function	0	0
	Use	0	0
	Type	0	0
	Proper Use	0	0
	Failure Modes	0	0

<b>Automatic (Passive) Belt System Availability/Function</b> (0) Not equipped/not available (1) 2 point automatic belts (2) 3 point automatic belts (3) Automatic belts - type unknown  <i>Non-functional</i> (4) Automatic belts destroyed or rendered inoperative (9) Unknown  <b>Automatic (Passive) Belt System Use</b> (0) Not equipped/not available/destroyed or rendered inoperative (1) Automatic belt in use (2) Automatic belt not in use (manually disconnected, motorized track inoperative) (3) Automatic belt use unknown (9) Unknown  <b>Automatic (Passive) Belt System Type</b> (0) Not equipped/not available (1) Non-motorized system (2) Motorized system (9) Unknown	<b>Proper Use of Automatic (Passive) Belt System</b> (0) Not equipped/not available/not used (1) Automatic belt used properly (2) Automatic belt used properly with child safety seat  <i>Automatic Belt Used Improperly</i> (3) Automatic shoulder belt worn under arm (4) Automatic shoulder belt worn behind back (5) Automatic belt worn around more than one person (6) Lap portion of automatic belt worn on abdomen (7) Automatic lap and shoulder belt or automatic shoulder belt used improperly with child safety seat (specify): (8) Other improper use of automatic belt system (specify): (9) Unknown	<b>Automatic (Passive) Belt Failure Modes During Accident</b> (0) Not equipped/not available/not in use (1) No automatic belt failure(s) (2) Torn webbing (stretched webbing not included) (3) Broken buckle or latchplate (4) Upper anchorage separated (5) Other anchorage separated (specify): (6) Broken retractor (7) Combination of above (specify): (8) Other automatic belt failure (specify): (9) Unknown
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# FIRST SEAT FRONTAL AIR BAGS

NOTES: Encode the applicable data for the driver and first seat passenger in the vehicle. The attribute for the variable may be found below. Restraint systems should be assessed during the vehicle inspection then coded on the Occupant Assessment Form.

	Driver	Passenger
Type of air bag?	1	1
Flaps open at tear points?	7	2
Flaps damaged?	7	1
Air bag damaged?	97	01
Source of air bag damage	97	01
Air bag tethered?	7	2
Air bag have vent ports?	7	1
Other occupant contact air bag?	7	1
Occupant wearing eyewear?	7	1

## Type of Air Bag

- (0) Not equipped/not available
- (1) Original manufacturer installed system
- (2) Retrofitted air bag
- (3) Replacement air bag
- (8) Unknown type of air bag
- (9) Unknown

## Did Air Bag Module Cover Flap(s) Open At Designated Tear Points?

- (0) Not equipped/not available
- (1) No
- (2) Yes
- (3) Deployed, unknown if flap(s) opened at designated tear points
- (7) Not deployed
- (8) Unknown if deployed
- (9) Unknown

## Were Air Bag Module Cover Flap(s) Damaged?

- (0) Not equipped/not available
- (1) No
- (2) Yes (specify):
- (3) Deployed, unknown if air bag module cover flap(s) damaged
- (7) Not deployed
- (8) Unknown if deployed
- (9) Unknown

## Was There Damage To The Air Bag?

- (00) Not equipped/not available
- (01) Not damaged

### Yes - Air Bag Damage

- (02) Ruptured
- (03) Cut
- (04) Torn
- (05) Holed
- (06) Burned
- (07) Abraded
- (88) Other damage (specify):
- (95) Damaged, details unknown
- (96) Deployed, unknown if damaged
- (97) Not deployed
- (98) Unknown if deployed
- (99) Unknown

## Source of Air Bag Damage

- (00) Not equipped/not available
- (01) Not damaged
- (02) Object worn by occupant, (specify):
- (03) Object carried by occupant, (specify):
- (04) Adaptive/assistive controls, (specify):
- (05) Fire in vehicle
- (06) Thermal burns
- (07) Rescue or emergency efforts
- (88) Other damage source (specify):
- (95) Damaged, unknown source
- (96) Deployed, unknown if damaged
- (97) Not deployed
- (98) Unknown if deployed
- (99) Unknown

## Was The Air Bag Tethered?

- (0) Not equipped/not available
- (1) No
- (2) Yes (specify number of tether straps):
- (3) Deployed, unknown if tethered
- (7) Not deployed
- (8) Unknown if deployed
- (9) Unknown

## Did The Air Bag Have Vent Ports?

- (0) Not equipped/not available
- (1) No
- (2) Yes (specify number of vent ports):
- (3) Deployed, unknown if vent ports present
- (7) Not deployed
- (8) Unknown if deployed
- (9) Unknown

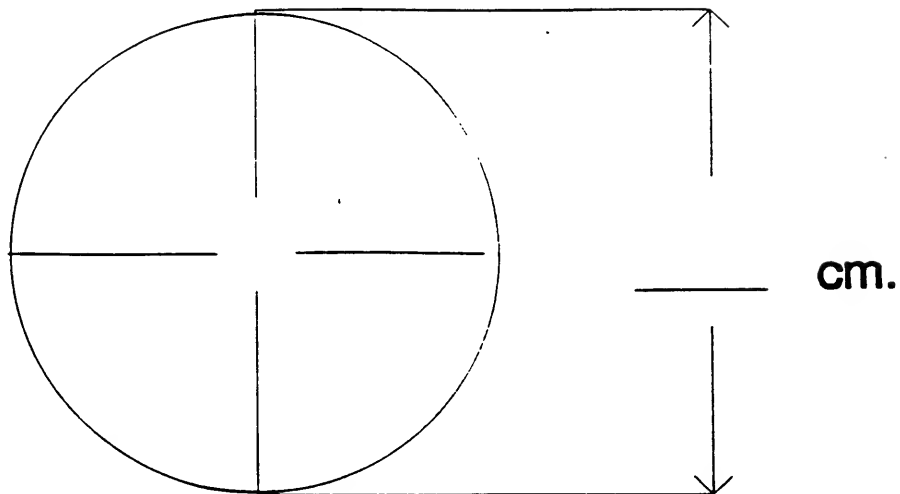
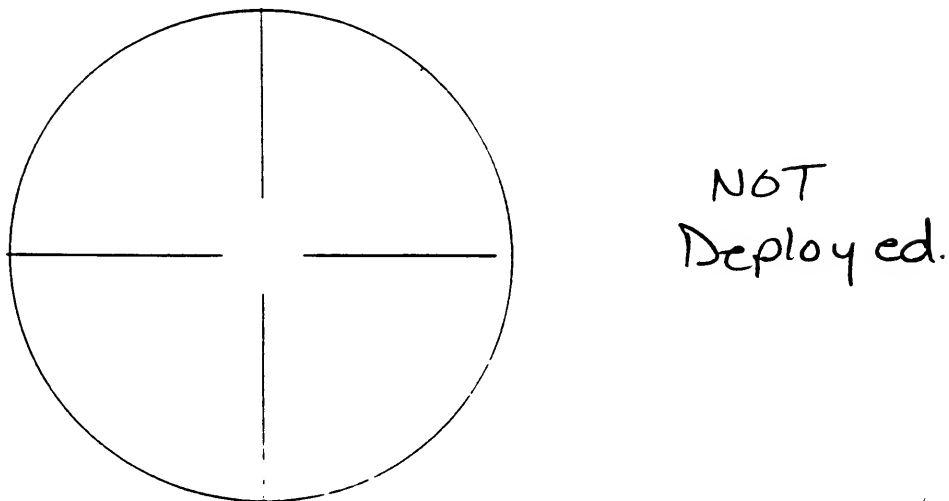
## Was the Air Bag in this Occupant's Position Contacted by Another Occupant?

- (0) Not equipped/not available
- (1) No
- (2) Yes (specify):
- (3) Deployed, unknown if other occupant contact to air bag
- (7) Not deployed
- (8) Unknown if deployed
- (9) Unknown

## Was This Occupant Wearing Eye-wear?

- (0) Not equipped/not available
- (1) No
- (2) Eyeglasses/sunglasses
- (3) Contact lenses
- (4) Deployed, unknown if eyewear worn
- (7) Not deployed
- (8) Unknown if deployed
- (9) Unknown



**DRIVER AIR BAG DAMAGE AND CONTACT SKETCHES****1. SKETCH DAMAGE AND CONTACT EVIDENCE ON DRIVER AIR BAG (Front)****2. SKETCH DAMAGE AND CONTACT EVIDENCE ON DRIVER AIR BAG (Back)**

## DRIVER AIR BAG SKETCHES (Cont'd)

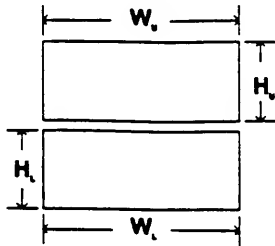
### 3. DRIVER AIR BAG MODULE COVER FLAP SIZE (DOUBLE)

a. Upper Flap

b. Lower Flap

width ( $W_U$ ) \_\_\_\_\_ width ( $W_L$ ) \_\_\_\_\_

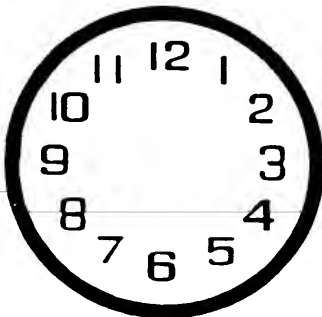
height ( $H_U$ ) \_\_\_\_\_ height ( $H_L$ ) \_\_\_\_\_



### 4. SKETCH OF OTHER TYPE OF AIR BAG MODULE FLAP AND SIZE

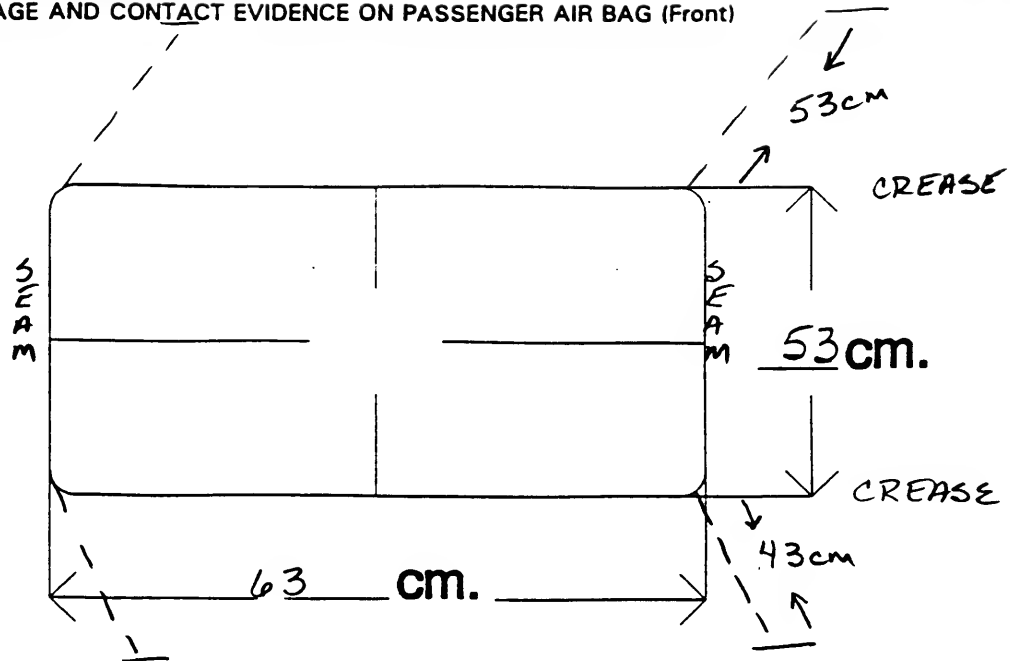
### 5. SKETCH OF OTHER TYPE OF AIR BAG VENT PORTS

### 6. SKETCH LOCATION OF CIRCULAR AIR BAG VENT PORTS

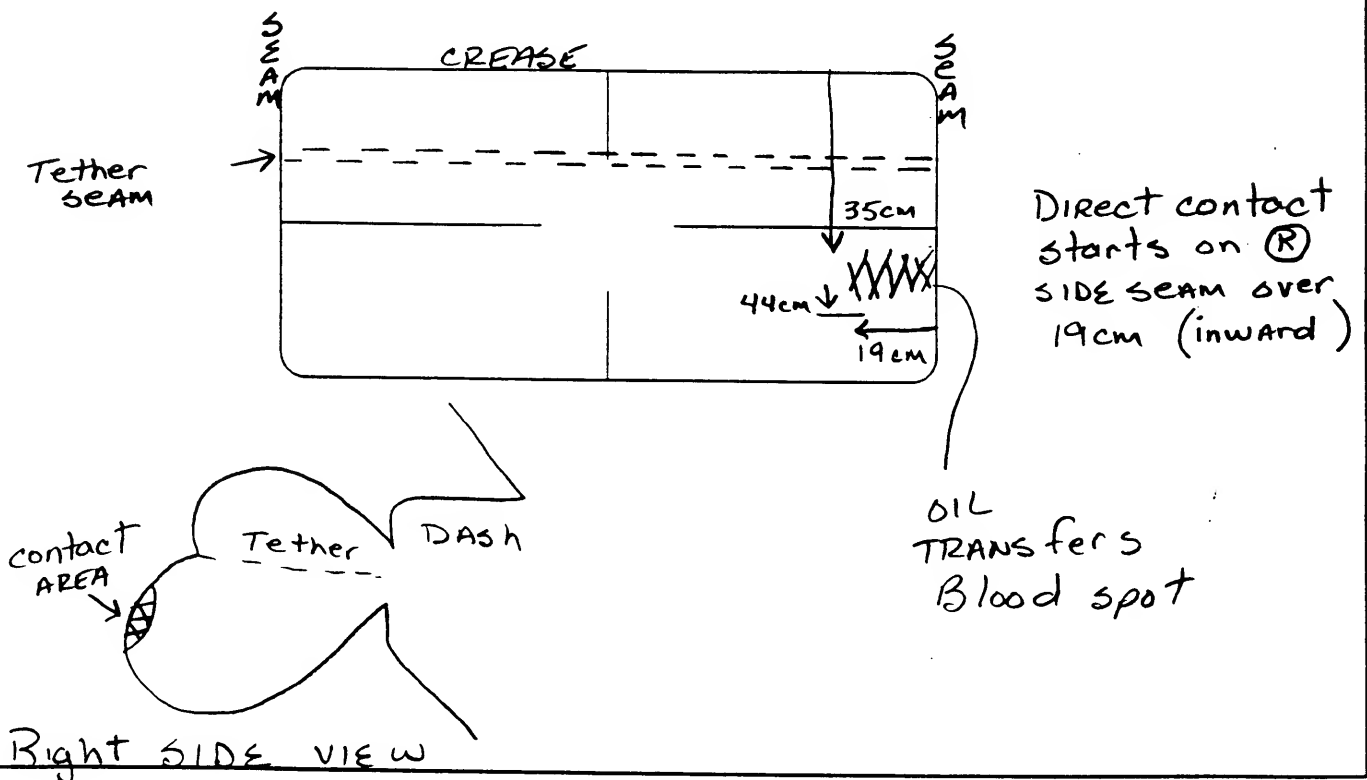


## PASSENGER AIR BAG DAMAGE AND CONTACT SKETCHES

## 1. SKETCH DAMAGE AND CONTACT EVIDENCE ON PASSENGER AIR BAG (Front)



## 2. SKETCH DAMAGE AND CONTACT EVIDENCE ON PASSENGER AIR BAG (Back)



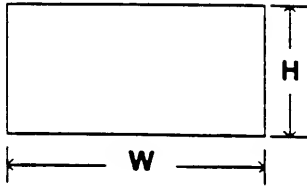
# PASSENGER AIR BAG SKETCHES (Cont'd)

## 3. PASSENGER AIR BAG MODULE COVER FLAP SIZE (SINGLE)

a. Flap

width (W) \_\_\_\_\_

height (H) \_\_\_\_\_



## 4. PASSENGER AIR BAG MODULE COVER FLAP SIZE (DOUBLE)

a. Upper Flap

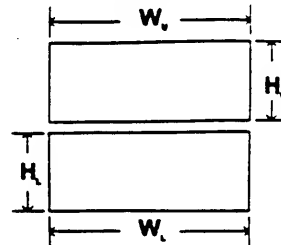
b. Lower Flap

width (W<sub>u</sub>) 35 cm

width (W<sub>l</sub>) 34 cm

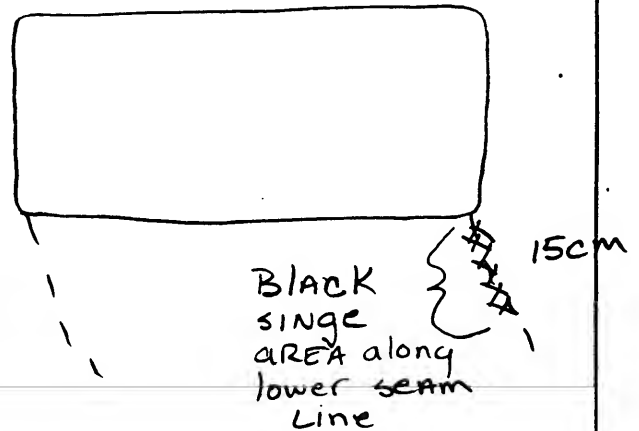
height (H<sub>u</sub>) 8 cm

height (H<sub>l</sub>) 8 cm

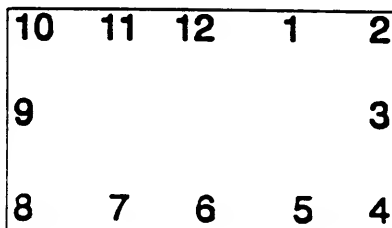


## 5. SKETCH OF OTHER TYPE OF AIR BAG MODULE FLAP AND SIZE

## 6. SKETCH OF OTHER TYPE OF AIR BAG VENT PORTS



## 7. SKETCH LOCATION OF RECTANGULAR AIR BAG VENT PORTS



NO VENT PORTS

**"OTHER" AIR BAG DAMAGE AND CONTACT SKETCHES**

1. SKETCH DAMAGE AND CONTACT EVIDENCE ON "OTHER" AIR BAG (Front)

2. SKETCH DAMAGE AND CONTACT EVIDENCE ON "OTHER" AIR BAG (Back)

**"OTHER" AIR BAG SKETCHES (Cont'd)**

**3. SKETCH AIR BAG MODULE FLAP AND SIZE OR OPENING FOR AIRBAG**

**4. SKETCH AIR BAG VENT PORTS**

**HEAD RESTRAINTS/SEAT EVALUATION**

**NOTES:** Encode the applicable data for each seat position in the vehicle. The attribute for these variables may be found at the bottom of the page. Head restraint type/damage and seat type/performance should be assessed during the vehicle inspection then coded on the Occupant Assessment Form.

		Left	Center	Right
<b>FIRST</b>	Head Restraint Type/Damage	1		1
	Seat Type	02		02
	Seat Performance	1		1
	Seat Orientation	1		1
	Seat Track Position	5		5
	Seat Back Incline Pre/Post Impact	23		23
<b>SECOND</b>	Head Restraint Type/Damage	1		1
	Seat Type	03		03
	Seat Performance	1		1
	Seat Orientation	1		1
	Seat Track Position	1		1
	Seat Back Incline Pre/Post Impact	01		01
<b>THIRD</b>	Head Restraint Type/Damage			
	Seat Type			
	Seat Performance			
	Seat Orientation			
	Seat Track Position			
	Seat Back Incline Pre/Post Impact			
<b>OTHER</b>	Head Restraint Type/Damage			
	Seat Type			
	Seat Performance			
	Seat Orientation			
	Seat Track Position			
	Seat Back Incline Pre/Post Impact			

**DESCRIBE ANY INDICATION OF ABNORMAL OCCUPANT POSTURE  
(I.E., UNUSUAL OCCUPANT CONTACT PATTERN)**

## HEAD RESTRAINTS/SEAT EVALUATION

## Head Restraint Type/Damage by Occupant at This Occupant Position

- (0) No head restraints  
 (1) Integral — no damage  
 (2) Integral — damaged during accident  
 (3) Adjustable — no damage  
 (4) Adjustable — damaged during accident  
 (5) Add-on — no damage  
 (6) Add-on — damaged during accident  
 (8) Other  
 Specify: \_\_\_\_\_  
 (9) Unknown

## Seat Type (this Occupant Position)

- (00) Occupant not seated or no seat  
 (01) Bucket  
 (02) Bucket with folding back  
 (03) Bench  
 (04) Bench with separate back cushions  
 (05) Bench with folding back(s)  
 (06) Split bench with separate back cushions  
 (07) Split bench with folding back(s)  
 (08) Pedestal (i.e., column supported)  
 (09) Other seat type (specify): \_\_\_\_\_  
 (10) Box mounted seat (i.e., van type)  
 (99) Unknown

## Seat Performance (this Occupant Position)

- (0) Occupant not seated or no seat  
 (1) No seat performance failure(s)  
 (2) Seat adjusters failed  
 (3) Seat back folding locks or "seat back" failed (specify): \_\_\_\_\_  
 (4) Seat tracks/anchors failed  
 (5) Deformed by impact of occupant  
 (6) Deformed by passenger compartment intrusion (specify): \_\_\_\_\_  
 (7) Combination of above (specify): \_\_\_\_\_  
 (8) Other (specify): \_\_\_\_\_  
 (9) Unknown

## Seat Orientation (this Occupant Position)

- (0) Occupant not seated or no seat  
 (1) Forward facing seat  
 (2) Rear facing seat  
 (3) Side facing seat (inward)  
 (4) Side facing seat (outward)  
 (8) Other (specify): \_\_\_\_\_  
 (9) Unknown

## Seat Track Adjusted Position Prior To Impact

- (0) Occupant not seated or no seat  
 (1) Non-adjustable seat track  
**Adjustable Seat Track**  
 (2) Seat at forward most track position  
 (3) Seat between forward most and middle track positions  
 (4) Seat at middle track position  
 (5) Seat between middle and rear most track positions  
 (6) Seat at rear most track position  
 (9) Unknown

## Seat Back Incline Prior and Post Impact

- (00) Occupant not seated or no seat  
 (01) Not adjustable

*Upright prior to impact*

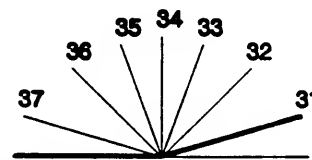
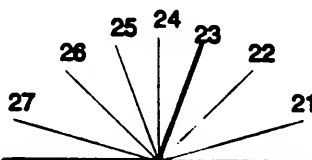
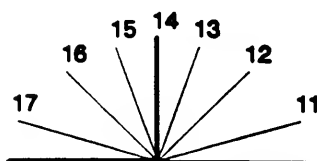
- (11) Moved to completely rearward position  
 (12) Moved to rearward midrange position  
 (13) Moved to slightly rearward position  
 (14) Retained pre-impact position  
 (15) Moved to slightly forward position  
 (16) Moved to forward midrange position  
 (17) Moved to completely forward position

*Slightly reclined prior to impact*

- (21) Moved to completely rearward position  
 (22) Moved to rearward midrange position  
 (23) Retained pre-impact position  
 (24) Moved to upright position  
 (25) Moved to slightly forward position  
 (26) Moved to forward midrange position  
 (27) Moved to completely forward position

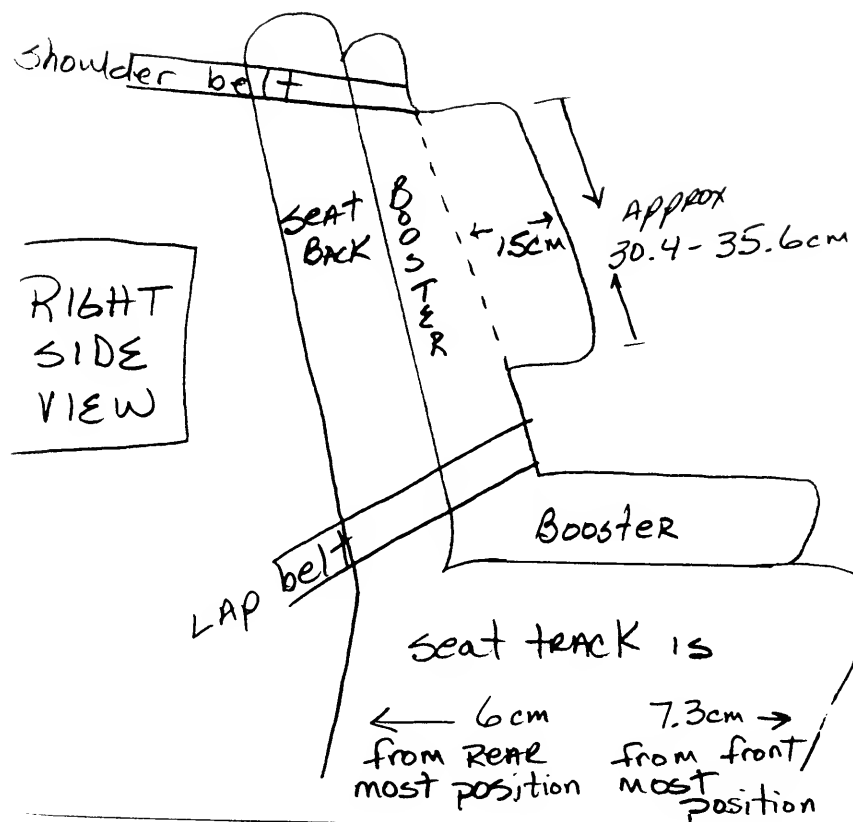
*Completely reclined prior to impact*

- (31) Retained pre-impact position  
 (32) Moved to rearward midrange position  
 (33) Moved to slightly rearward position  
 (34) Moved to upright position  
 (35) Moved to slightly forward position  
 (36) Moved to forward midrange position  
 (37) Moved to completely forward position  
 (99) Unknown

Coding diagrams for *Seat Back Incline Position Prior and Post Impact*

DESCRIBE ANY INDICATION OF ABNORMAL OCCUPANT POSTURE  
 (I.E., UNUSUAL OCCUPANT CONTACT PATTERN)





Shoulder belt  
PASSES ABOVE OR OVER  
15cm SIDE PAD

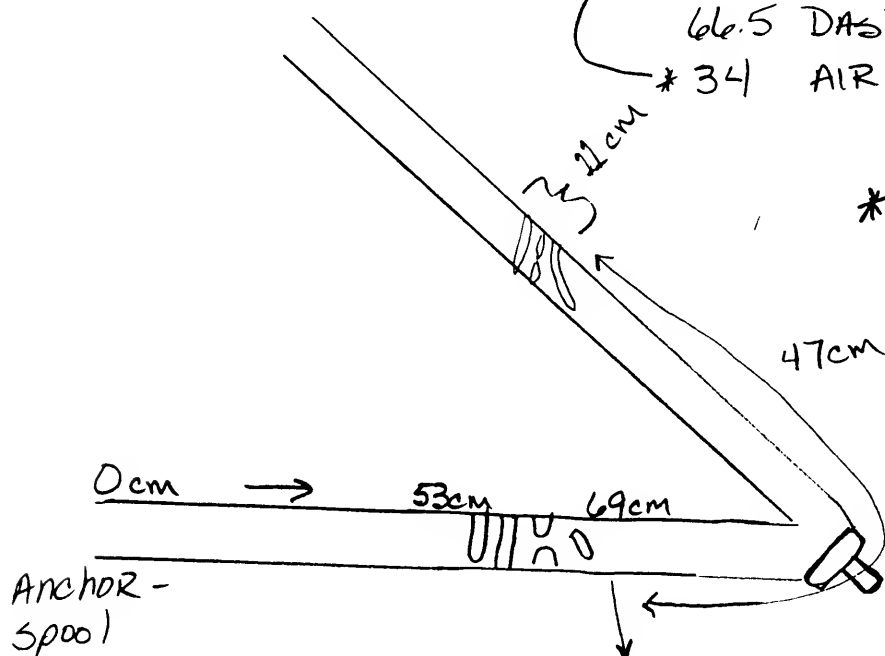
Lap belt goes  
under 15cm SIDE  
PAD

SIDE PAD on both  
SIDES APPROX 10 cm  
thick

PASS SIDE

CM	Measurement
76.5	DASH to center seatback
* 42.5	AIR bag to center of seatback
66.5	DASH to center child booster
* 34	AIRbag to center child boost

\* AIRbag center is tether  
at extended position



Distance to  
shoulder strap blood  
from end of LAP blood  
is 47cm

Dual sensitive  
no locking clip

## CHILD SAFETY SEAT FIELD ASSESSMENT

When a child safety seat is present enter the occupant's number in the first row and complete the column below the occupant's number using the codes listed below. Complete a column for each child safety seat present.

Occupant Number	02					
1. Type of Child Safety Seat	4					
2. Child Safety Seat Orientation	12					
3. Child Safety Seat Harness Usage	11					
4. Child Safety Seat Shield Usage	11					
5. Child Safety Seat Tether Usage	11					
6. Child Safety Seat Make/Model	Specify Below for Each Child Safety Seat					

1. Type of Child Safety Seat
- (0) No child safety seat
  - (1) Infant seat
  - (2) Toddler seat
  - (3) Convertible seat
  - (4) Booster seat
  - (7) Other type child safety seat (specify):

- (8) Unknown child safety seat type
- (9) Unknown if child safety seat used

2. Child Safety Seat Orientation

- (00) No child safety seat

Designed for Rear Facing for This Age/Weight

- (01) Rear facing
- (02) Forward facing
- (08) Other orientation (specify):

- (09) Unknown orientation

Designed for Forward Facing for This Age/Weight

- (11) Rear facing
- (12) Forward facing
- (18) Other orientation (specify):

- (19) Unknown orientation

Unknown Design or Orientation For This Age/Weight, or Unknown Age/Weight

- (21) Rear facing
- (22) Forward facing
- (28) Other orientation (specify):

- (29) Unknown orientation

- (99) Unknown if child safety seat used

3. Child Safety Seat Harness Usage

4. Child Safety Seat Shield Usage

5. Child Safety Seat Tether Usage

Note: Options Below Are Used for Variables 3-5.

- (00) No child safety seat

Not Designed with Harness/Shield/Tether

- (01) After market harness/shield/tether added, not used
- (02) After market harness/shield/tether used
- (03) Child safety seat used, but no after market harness/shield/tether added
- (09) Unknown if harness/shield/tether added or used

Designed With Harness/Shield/Tether

- (11) Harness/shield/tether not used
- (12) Harness/shield/tether used
- (19) Unknown if harness/shield/tether used

Unknown If Designed With Harness/Shield/Tether

- (21) Harness/shield/tether not used
- (22) Harness/shield/tether used
- (29) Unknown if harness/shield/tether used

- (99) Unknown if child safety seat used

6. Child Safety Seat Make/Model

(Specify make/model and occupant number)

Century - Breverra

Model #

w/ 1<sup>st</sup> YEAR BRAND

Comfy cushion padded insert

NASS CODE

**EJECTION/ENTRAPMENT DATA**

Complete the following if the researcher has any indication that an occupant was either ejected from or entrapped in the vehicle. Code the appropriate data on the Occupant Assessment Form.

**EJECTION** No ☒ Yes [ ]

Describe indications of ejection and body parts involved in partial ejection(s):

---



---



---



---

Occupant Number						
Ejection						
(Note on Vehicle Interior Sketch) Ejection Area						
Ejection Medium						
Medium Status						

**Ejection**

- (1) Complete ejection  
(2) Partial ejection  
(3) Ejection, Unknown degree  
(9) Unknown

**Ejection Area**

- (1) Windshield  
(2) Left front  
(3) Right front  
(4) Left rear  
(5) Right rear  
(6) Rear

**(7) Roof**

- (8) Other area (e.g., back of pickup, etc.) (specify):

(9) Unknown

**Ejection Medium**

- (1) Door/hatch/tailgate  
(2) Nonfixed roof structure  
(3) Fixed glazing  
(4) Nonfixed glazing (specify):

**(5) Integral structure**

- (8) Other medium (specify):

(9) Unknown

**Medium Status (Immediately Prior to Impact)**

- (1) Open  
(2) Closed  
(3) Integral structure  
(9) Unknown

**ENTRAPMENT** No ☒ Yes [ ]

Describe entrapment mechanism:

---



---



---



---

Component(s):

(Note in vehicle interior diagram)

**Appendix E:**

**NASS CDS VEHICLE FORMS: VEHICLE #2**



## GENERAL VEHICLE FORM

1. Primary Sampling Unit Number

2. Case Number - Stratum

3. Vehicle Number

### VEHICLE IDENTIFICATION

4. Vehicle Model Year  
Code the last two digits of the model year  
(99) Unknown

5. Vehicle Make (specify):

CADILLAC  
Applicable codes are found in your  
NASS Data Collection, Coding and  
Editing Manual.  
(99) Unknown

6. Vehicle Model (specify):

Deville concours  
Applicable codes are found in your  
NASS Data Collection, Coding and  
Editing Manual.  
(999) Unknown

7. Body Type

Note: Applicable codes may be found on  
the back of this page.

8. Vehicle Identification Number

1G6KF52Y8B1  
Left justify; Slash zeros and letter Z (0 and-Z)  
No VIN—Code all zeros Unknown—Code all nines

9. Vehicle Special Use (This Trip)

(0) No special use

(1) Taxi

(2) Vehicle used as school bus

(3) Vehicle used as other bus

(4) Military

(5) Police

(6) Ambulance

(7) Fire truck or car

(8) Other (specify):

(9) Unknown

### OFFICIAL RECORDS

10. Police Reported Vehicle Disposition

(0) Not towed due to vehicle damage

(1) Towed due to vehicle damage

(9) Unknown

11. Police Reported Travel Speed

Code to the nearest kmph (NOTE: 000 means  
less than 0.5 kmph)

(160) 159.5 kmph and above

(999) Unknown

10 mph X 1.6093 = 16 kmph

12. Speed Limit

(000) No statutory limit

Code posted or statutory speed limit  
in kmph

(999) Unknown

30 mph X 1.6093 = 48 kmph

13. Police Reported Alcohol Presence For Driver

(0) No alcohol present

(1) Yes alcohol present

(7) Not reported

(8) No driver present

(9) Unknown

14. Alcohol Test Result For Driver

Code actual value (decimal implied  
before first digit—0.xx)

(95) Test refused

(96) None given

(97) AC test performed, results unknown

(98) No driver present

(99) Unknown

Source: PAR

15. Police Reported Other Drug Presence For Driver

(0) No other drug(s) present

(1) Yes other drug(s) present

(7) Not reported

(8) No driver present

(9) Unknown

16. Other Drug Specimen Test Result For Driver

(0) No specimen test given

(1) Drug(s) not found in specimen

(2) Drug(s) found in specimen, (specify):

(3) Specimen test given, results unknown or not  
obtained

(8) No driver present

(9) Unknown if specimen test given

17. Driver's Zip Code

(00001) Driver not a resident of U.S. or territories  
Code actual 5-digit zip code

(99998) No driver present

(99999) Unknown

18. Driver's Race/Ethnic Origin

(1) White (non-Hispanic)

(2) Black (non-Hispanic)

(3) White (Hispanic)

(4) Black (Hispanic)

(5) American Indian, Eskimo or Aleut

(6) Asian or Pacific Islander

(7) Other (specify):

(8) No driver present

(9) Unknown

# CODES FOR BODY TYPE

## CDS APPLICABLE VEHICLES

### Automobiles

- (01) Convertible (excludes sun-roof, t-bar)
- (02) 2-door sedan, hardtop, coupe
- (03) 3-door/2-door hatchback
- (04) 4-door sedan, hardtop
- (05) 5-door/4-door hatchback
- (06) Station wagon (excluding van and truck based)
- (07) Hatchback, number of doors unknown
- (08) Other automobile type (specify): \_\_\_\_\_
- (09) Unknown automobile type

### Automobile Derivatives

- (10) Auto based pickup (includes El Camino, Caballero, Ranchero, Brat, and Rabbit pickup)
- (11) Auto based panel (cargo station wagon, auto based ambulance/hearse)
- (12) Large limousine - more than four side doors or stretched chassis
- (13) Three-wheel automobile or automobile derivative

### Utility Vehicles ( $\leq 4,500$ kgs GVWR)

- (14) Compact utility (Jeep CJ-2 - CJ-7, Scrambler, Golden Eagle, Renegade, Laredo, Wrangler, Cherokee [84 and after], Dispatcher, Raider, Bronco II, Bronco [76 and before], Explorer, S-10 Blazer, Geo Tracker, Bravada, S-15 Jimmy, Thing, Pathfinder, Trooper, Trooper II, Rodeo, Amigo, Navajo, 4-Runner, Montero, Passport, Samurai, Sidekick, Rocky)
- (15) Large utility (includes Jeep Cherokee [83 and before], Ramcharger, Trailduster, Bronco-fullsize [78 and after], fullsize Blazer, fullsize Jimmy, Hummer, Landcruiser, Rover, Scout, Yukon)
- (16) Utility station wagon (Chevy Suburban, GMC Suburban, Travelall, Grand Wagoneer, includes suburban limousine)
- (19) Utility, unknown body type

### Van Based Light Trucks ( $\leq 4,500$ kgs GVWR)

- (20) Minivan (Town and Country, Caravan, Grand Caravan, Voyager, Grand Voyager, Mini-Ram, Vista, Aerostar, Windstar, Villager, Lumina APV, Trans Sport, Silhouette, Astro, Safari, Toyota Van, Toyota Minivan, Previa, Nissan Minivan, Quest, Mitsubishi Minivan, Expo Wagon, Vanagon/Camper.)
- (21) Large van (B150-B350, Sportsman, Royal, Maxiwagon, Ram, Tradesman, Voyager [83 and before], E150-E350, Econoline, Clubwagon, Chateau, G10-G30, Chevy Van, Beauville, Sport Van, G15-G35, Rally Van, Vandura.)
- (22) Step van or walk-in van ( $\leq 4,500$  kgs GVWR)
- (23) Van based motorhome ( $\leq 4,500$  kgs GVWR)
- (24) Van based school bus ( $\leq 4,500$  kgs GVWR)
- (25) Van based other bus ( $\leq 4,500$  kgs GVWR)
- (28) Other van type (Hi-Cube Van, Kary) (specify): \_\_\_\_\_
- (29) Unknown van type

### Light Conventional Trucks (Pickup style cab, $\leq 4,500$ kgs GVWR)

- (30) Compact pickup (D50, Colt P/U, Ram 50, Dakota, Arrow Pickup [foreign], Ranger, Courier, S-10, T-10, LUV, S-15, T-15, Sonoma, Datsun/Nissan Pickup, P'up, Mazda Pickup, Toyota Pickup, Mitsubishi Pickup)
- (31) Large Pickup (Jeep Pickup, Comanche, Ram Pickup, D100-D350, W100-W350, F100-F350, C10-C35, K10-K35, R10-R35, V10-V35, Silverado, Sierra, R100-R500, T100)

- (32) Pickup with slide-in camper
- (33) Convertible pickup
- (39) Unknown pickup style light conventional truck type

### Other Light Trucks ( $\leq 4,500$ kgs GVWR)

- (40) Cab chassis based (includes rescue vehicles, light stake, dump, and tow truck)
- (41) Truck based panel
- (42) Light truck based motorhome (chassis mounted)
- (45) Other light conventional truck type
- (48) Unknown light truck type
- (49) Unknown light vehicle type (automobile, utility, van, or light truck)

## OTHER VEHICLES

### Buses (Excludes Van Based)

- (50) School bus (designed to carry students, not cross country or transit)
- (58) Other bus type (e.g., transit, intercity, bus based motorhome) (specify): \_\_\_\_\_
- (59) Unknown bus type

### Medium/Heavy Trucks ( $> 4,500$ kgs GVWR)

- (60) Step van ( $> 4,500$  kgs GVWR)
- (61) Single unit straight truck (4,500 kgs  $<$  GVWR  $\leq$  8,850 kgs)
- (62) Single unit straight truck (8,850 kgs  $<$  GVWR  $\leq$  12,000 kgs)
- (63) Single unit straight truck ( $> 12,000$  kgs GVWR)
- (64) Single unit straight truck, GVWR unknown
- (65) Medium/heavy truck based motorhome
- (67) Truck-tractor with no cargo trailer
- (68) Truck-tractor pulling one trailer
- (69) Truck-tractor pulling two or more trailers
- (70) Truck-tractor (unknown if pulling trailer)
- (78) Unknown medium/heavy truck type
- (79) Unknown truck type (light/medium/heavy)

### Motored Cycles (Does Not Include All-Terrain Vehicles/Cycles)

- (80) Motorcycle
- (81) Moped (motorized bicycle)
- (82) Three-wheel motorcycle or moped
- (88) Other motored cycle (minibike, motorscooter) (specify): \_\_\_\_\_
- (89) Unknown motored cycle type

### Other Vehicles

- (90) ATV (All-Terrain Vehicle) and ATC (All-Terrain Cycle)
- (91) Snowmobile
- (92) Farm equipment other than trucks
- (93) Construction equipment other than trucks
- (97) Other vehicle type
- (99) Unknown body type

## PRECRASH ENVIRONMENTAL DATA

19. Relation To Interchange Or Junction 2  
 (0) Non-interchange area and non-junction  
 (1) Interchange area related

*Non-Interchange junctions*

- (2) Intersection related  
 (3) Driveway, alley access related  
 (4) Other junction (specify) \_\_\_\_\_

(5) Unknown type of junction

(9) Unknown

20. Trafficway Flow 0  
 (0) Not physically divided (two way traffic)  
 (1) Divided trafficway-median strip without positive barrier  
 (2) Divided trafficway-median strip with positive barrier  
 (3) One way traffic  
 (9) Unknown

21. Number Of Travel Lanes 2

- (1) One  
 (2) Two  
 (3) Three  
 (4) Four  
 (5) Five  
 (6) Six  
 (7) Seven or more  
 (9) Unknown

22. Roadway Alignment 1

- (1) Straight  
 (2) Curve right  
 (3) Curve left  
 (9) Unknown

23. Roadway Profile 2

- (1) Level  
 (2) Uphill grade (> 2%)  
 (3) Hill crest  
 (4) Downhill grade (> 2%)  
 (5) Sag  
 (9) Unknown

24. Roadway Surface Type 2

- (1) Concrete  
 (2) Bituminous (asphalt)  
 (3) Brick or block  
 (4) Slag, gravel, or stone  
 (5) Dirt  
 (8) Other (specify): \_\_\_\_\_  
 (9) Unknown

25. Roadway Surface Condition 1

- (1) Dry  
 (2) Wet  
 (3) Snow or slush  
 (4) Ice  
 (5) Sand, dirt, or oil  
 (8) Other (specify): \_\_\_\_\_  
 (9) Unknown

26. Light Conditions 1

- (1) Daylight  
 (2) Dark  
 (3) Dark, but lighted  
 (4) Dawn  
 (5) Dusk  
 (9) Unknown

27. Atmospheric Conditions 0

- (0) No adverse atmospheric-related driving conditions  
 (1) Rain  
 (2) Sleet/hail  
 (3) Snow  
 (4) Fog  
 (5) Rain and fog  
 (6) Sleet and fog  
 (7) Other (e.g., smog, smoke, blowing sand or dust, etc.) (specify): \_\_\_\_\_  
 (9) Unknown

28. Traffic Control Device 2

- (0) No traffic control(s)  
 (1) Traffic control signal (not RR crossing)

*Regulatory*

- (2) Stop sign  
 (3) Yield sign  
 (4) School zone sign  
 (5) Other regulatory sign (specify): \_\_\_\_\_

(6) Warning sign (not RR crossing)

(7) Unknown sign

(8) Miscellaneous/other controls including RR controls (specify): \_\_\_\_\_

(9) Unknown

29. Traffic Control Device Functioning 2

- (0) No traffic control device  
 (1) Traffic control device not functioning (specify): \_\_\_\_\_  
 (2) Traffic control device functioning properly  
 (9) Unknown

**PRECRASH DRIVER RELATED DATA**

30. Driver's Distraction/Inattention To Driving 02  
 (Prior To Recognition Of Critical Event)  
 (00) No driver present  
 (01) Attentive or not distracted PAR  
 (02) Looked but did not see

*Distractions*

- (03) By other occupant(s), (specify): \_\_\_\_\_  
 (04) By moving object in vehicle (specify): \_\_\_\_\_  
 (05) While talking or listening to cellular phone  
 (specify location and type of phone): \_\_\_\_\_  
 (06) While dialing cellular phone (specify location  
 and type of phone): \_\_\_\_\_  
 (07) While adjusting climate controls  
 (08) While adjusting radio, cassette, CD (specify): \_\_\_\_\_  
 (09) While using other device/object in vehicle  
 (specify): \_\_\_\_\_  
 (10) Sleepy or fell asleep  
 (11) Distracted by outside person, object, or event  
 (specify): \_\_\_\_\_  
 (12) Eating or drinking  
 (13) Smoking related  
 (97) Distracted/inattentive, details unknown  
 (98) Other, distraction (specify): \_\_\_\_\_  
 (99) Unknown

31. Pre-Event Movement (Prior to  
 Recognition of Critical Event) 04  
 (00) No driver present  
 (01) Going straight  
 (02) Decelerating in traffic lane  
 (03) Accelerating in traffic lane  
 (04) Starting in traffic lane  
 (05) Stopped in traffic lane  
 (06) Passing or overtaking another vehicle  
 (07) Disabled or parked in travel lane  
 (08) Leaving a parking position  
 (09) Entering a parking position  
 (10) Turning right  
 (11) Turning left  
 (12) Making a U-turn  
 (13) Backing up (other than for parking position)  
 (14) Negotiating a curve  
 (15) Changing lanes  
 (16) Merging  
 (17) Successful avoidance maneuver to a previous  
 critical event  
 (97) Other (specify): \_\_\_\_\_  
 (99) Unknown

32. Critical Precrash Event 17  
*This Vehicle Loss of Control Due To:*  
 (01) Blow out or flat tire  
 (02) Stalled engine  
 (03) Disabling vehicle failure (e.g., wheel fell off)  
 (specify): \_\_\_\_\_  
 (04) Non-disabling vehicle problem (e.g., hood flew  
 up) (specify): \_\_\_\_\_  
 (05) Poor road conditions (puddle, pot hole, ice, etc.)  
 (specify): \_\_\_\_\_  
 (06) Traveling too fast for conditions  
 (08) Other cause of control loss (specify): \_\_\_\_\_  
 (09) Unknown cause of control loss

*This Vehicle Traveling*

- (10) Over the lane line on left side of travel lane  
 (11) Over the lane line on right side of travel lane  
 (12) Off the edge of the road on the left side  
 (13) Off the edge of the road on the right side  
 (14) End departure  
 (15) Turning left at intersection  
 (16) Turning right at intersection  
 (17) Crossing over (passing through) intersection  
 (18) This vehicle decelerating  
 (19) Unknown travel direction

*Other Motor Vehicle In Lane*

- (50) Other vehicle stopped  
 (51) Traveling in same direction with lower steady  
 speed  
 (52) Traveling in same direction while decelerating  
 (53) Traveling in same direction with higher speed  
 (54) Traveling in opposite direction  
 (55) In crossover  
 (56) Backing  
 (59) Unknown travel direction of other motor  
 vehicle in lane

*Other Motor Vehicle Encroaching Into Lane*

- (60) From adjacent lane (same direction)—over left  
 lane line  
 (61) From adjacent lane (same direction)—over right  
 lane line  
 (62) From opposite direction—over left lane line  
 (63) From opposite direction—over right lane line  
 (64) From parking lane  
 (65) From crossing street, turning into same  
 direction  
 (66) From crossing street, across path  
 (67) From crossing street, turning into opposite  
 direction  
 (68) From crossing street, intended path not known  
 (70) From driveway, turning into same direction  
 (71) From driveway, across path  
 (72) From driveway, turning into opposite direction  
 (73) From driveway, intended path not known  
 (74) From entrance to limited access highway  
 (78) Encroachment by other vehicle—details  
 unknown

*Pedestrian, Pedalcyclist, or Other Nonmotorist*

- (80) Pedestrian in roadway  
 (81) Pedestrian approaching roadway  
 (82) Pedestrian—unknown location  
 (83) Pedalcyclist or other nonmotorist in roadway  
 (specify): \_\_\_\_\_  
 (84) Pedalcyclist or other nonmotorist approaching  
 roadway, (specify): \_\_\_\_\_  
 (85) Pedalcyclist or other nonmotorist—unknown  
 location (specify): \_\_\_\_\_

*Object or Animal*

- (87) Animal in roadway  
 (88) Animal approaching roadway  
 (89) Animal—unknown location  
 (90) Object in roadway  
 (91) Object approaching roadway  
 (92) Object—unknown location  
 (98) Other critical precrash event (specify): \_\_\_\_\_  
 (99) Unknown



33. Attempted Avoidance Maneuver 07

- (00) No driver present
- (01) No avoidance maneuver
- (02) Braking (no lockup)
- (03) Braking (lockup)
- (04) Braking (lockup unknown)
- (05) Releasing brakes
- (06) Steering left
- (07) Steering right
- (08) Braking and steering left
- (09) Braking and steering right
- (10) Accelerating
- (11) Accelerating and steering left
- (12) Accelerating and steering right
- (98) Other action (specify):

(99) Unknown

34. Pre-Impact Stability 1

- (0) No driver present
- (1) Tracking
- (2) Skidding longitudinally—rotation less than 30 degrees
- (3) Skidding laterally—clockwise rotation
- (4) Skidding laterally—counterclockwise rotation
- (7) Other vehicle loss-of-control (specify):

(9) Precrash stability unknown

35. Pre-Impact Location 1

- (0) No driver present
- (1) Stayed in original travel lane
- (2) Stayed on roadway but left original travel lane
- (3) Stayed on roadway, not known if left original travel lane
- (4) Departed roadway
- (5) Remained off roadway
- (6) Returned to roadway
- (7) Entered roadway
- (9) Unknown

36. Accident Type 89

(Note: Applicable codes on back of this page)

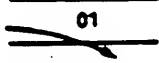





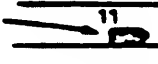


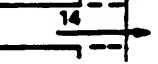
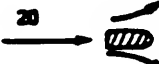
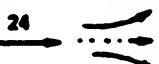
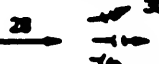








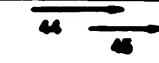


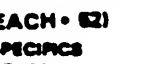

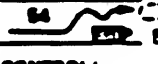






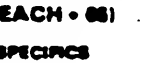







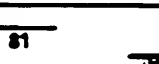

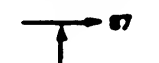

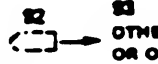

(00) No impact

Code the number of the diagram that best describes the accident circumstance

(98) Other accident type (specify):

(99) Unknown

**STOP HERE IF GV07 DOES NOT EQUAL 01 - 49**

Category	Configuration	ACCIDENT TYPES (Includes Intent)				
I Single Driver	A Right Roadside Departure	 01 DRIVE OFF ROAD	 02 CONTROL/ TRACTION LOSS	 03 AVOID COLLISION WITH VEH., PED., ANIM.	04 SPECIFICS OTHER	05 SPECIFICS UNKNOWN
	B Left Roadside Departure	 06 DRIVE OFF ROAD	 07 CONTROL/ TRACTION LOSS	 08 AVOID COLLISION WITH VEH., PED., ANIM.	09 SPECIFICS OTHER	10 SPECIFICS UNKNOWN
	C Forward Impact	 11 PARKED VEH.	 12 STA. OBJECT	 13 PEDESTRIAN/ ANIMAL	 14 END DEPARTURE	15 SPECIFICS OTHER 16 SPECIFICS UNKNOWN
II Same Trafficway Same Direction	D Rear-End	 20 STOPPED 21, 22, 23	 24 SLOWER 26, 28, 27	 28 DECEL. 29, 30, 31	 30 (EACH • 32) SPECIFICS OTHER	 31 (EACH • 33) SPECIFICS UNKNOWN
	E Forward Impact	 34 CONTROL/ TRACTION LOSS	 36 CONTROL/ TRACTION LOSS	 38 AVOID COLLISION WITH VEH.	 40 AVOID COLLISION WITH OBJECT	 41 (EACH • 42) SPECIFICS OTHER  42 (EACH • 43) SPECIFICS UNKNOWN
	F Sideswipe Angle	 44 45 46 47 (EACH • 46) SPECIFICS OTHER	 46 (EACH • 48) SPECIFICS UNKNOWN			
III Same Trafficway Opposite Direction	G Head-On	 50 LATERAL MOVE	 51 (EACH • 62) SPECIFICS OTHER	 52 (EACH • 63) SPECIFICS UNKNOWN		
	H Forward Impact	 64 CONTROL/ TRACTION LOSS	 66 CONTROL/ TRACTION LOSS	 68 AVOID COLLISION WITH VEH.	 70 AVOID COLLISION WITH OBJECT	 71 (EACH • 62) SPECIFICS OTHER  72 (EACH • 63) SPECIFICS UNKNOWN
	I Sideswipe Angle	 64 LATERAL MOVE	 65 (EACH • 66) SPECIFICS OTHER	 67 (EACH • 67) SPECIFICS UNKNOWN		
IV Change Trafficway Vehicle Turning	J Turn Across Path	 69 INITIAL OPPOSITE DIRECTIONS	 71 INITIAL SAME DIRECTIONS	 73 (EACH • 74) SPECIFICS OTHER	 74 (EACH • 75) SPECIFICS UNKNOWN	
	K Turn Into Path	 77 TURN INTO SAME DIRECTION	 79 TURN INTO OPPOSITE DIRECTIONS	 81 (EACH • 84) SPECIFICS OTHER	 82 (EACH • 85) SPECIFICS UNKNOWN	
V Intersecting Paths (Vehicle Damage)	L Straight Paths	 87 (EACH • 90) SPECIFICS OTHER	 88 (EACH • 91) SPECIFICS UNKNOWN			
VI Miscellaneous	M Backing Etc	 82 BACKING VEH.	 83 OTHER VEH. OR OBJECT	98 Other Accident Type 99 Unknown Accident Type 00 No Impact		

## OCCUPANT RELATED

37. Driver Presence in Vehicle 1  
 (0) Driver not present  
 (1) Driver present  
 (9) Unknown
38. Number of Occupants This Vehicle 0 2  
 (00-96) Code actual number of occupants for this vehicle  
 (97) 97 or more  
 (99) Unknown
39. Number of Occupant Forms Submitted 0 2

## AIR BAG RELATED

40. Is this an AOPS Vehicle? 1  
 (0) No (includes unknown)  
 (1) Yes - researcher determined  
 (2) VIN determined air bag system  
 (3) VIN determined automatic (passive) belts  
 (4) VIN determined air bag and automatic (passive) belts
41. Air Bag(s) Deployment, First Seat Frontal 1  
 (0) Not equipped or not available  
 (1) No air bags deployed  
*Single Air Bag Vehicle*  
 (2) Driver air bag deployed  
 (3) Driver air bag, unknown if deployed  
*Multiple Air Bag Vehicle*  
 (4) Driver side only deployed  
 (5) Passenger side only deployed  
 (6) Driver and passenger side deployed  
 (7) Driver and passenger side unknown if deployed  
 (8) Air bag(s) deployed, details unknown  
 (9) Unknown
42. Air Bag(s) Deployment, Other Than First Seat Frontal 0  
 (0) Not equipped with an "other" air bag  
 (1) Deployed during accident (as a result of impact)  
 (2) Deployed inadvertently just prior to accident  
 (3) Deployed, details unknown  
 (4) Deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)  
 (5) Unknown if deployed  
 (7) Nondeployed  
 (9) Unknown

Specify type of "other" air bag present: \_\_\_\_\_

## VEHICLE WEIGHT ITEMS

43. Vehicle Curb Weight 1.8 1 0  
 Code weight to nearest 10 kilograms.  
 (045) Less than 450 kilograms  
 (610) 6,100 kilograms or more  
 (999) Unknown  
2984 lbs X .4536 = 1.807 kgs  
 Source: \_\_\_\_\_

44. Vehicle Cargo Weight 0 0 0 0  
 Code weight to nearest 10 kilograms.  
 (000) Less than 5 kilograms  
 (450) 4,500 kilograms or more  
 (999) Unknown  
 \_\_\_\_\_ lbs X .4536 = \_\_\_\_\_ kgs

Source: \_\_\_\_\_

## ROLLOVER DATA

45. Rollover 0 0  
 (00) No rollover (no overturning)  
*Rollover (primarily about the longitudinal axis)*  
 (01-16) Code the number of quarter turns  
 (17) Rollover, 17 or more quarter turns (specify): \_\_\_\_\_  
 (98) Rollover--end-over-end (i.e., primarily about the lateral axis)  
 (99) Rollover (overturn), details unknown
46. Rollover Initiation Type 0 0  
 (00) No rollover  
 (01) Trip-over  
 (02) Flip-over  
 (03) Turn-over  
 (04) Climb-over  
 (05) Fall-over  
 (06) Bounce-over  
 (07) Collision with another vehicle  
 (08) Other rollover initiation type specify): \_\_\_\_\_  
 (98) Rollover--end-over-end  
 (99) Unknown rollover initiation type
47. Location of Rollover Initiation 0  
 (0) No rollover  
 (1) On roadway  
 (2) On shoulder--paved  
 (3) On shoulder--unpaved  
 (4) On roadside or divided trafficway median  
 (8) Rollover--end-over-end  
 (9) Unknown
48. Rollover Initiation Object Contacted 0 0  
 (Note: Applicable codes on back of page)
49. Location on Vehicle Where Initial Principal Tripping Force Is Applied 0  
 (0) No rollover  
 (1) Wheels/tires  
 (2) Side plane  
 (3) End plane  
 (4) Undercarriage  
 (5) Other location on vehicle (specify): \_\_\_\_\_  
 (6) Non-contact rollover forces (specify): \_\_\_\_\_  
 (8) Rollover--end-over-end  
 (9) Unknown
50. Direction of Initial Roll 0  
 (0) No rollover  
 (1) Roll right - primarily about the longitudinal axis  
 (2) Roll left - primarily about the longitudinal axis  
 (8) Rollover--end-over-end  
 (9) Unknown roll direction

**OVERRIDE/UNDERRIDE (THIS VEHICLE)**

51. Front Override/Underride (this Vehicle) 0
52. Rear Override/Underride (this Vehicle) 0
- (0) No override/underride, or not an end-to-end impact between two CDS applicable vehicles, and no medium/heavy truck or bus underride
- Override (see specific CDC)*  
*[Between 2 CDS applicable vehicles (Bodytype, GV07 = 1-49)]*
- (1) 1st CDC  
 (2) 2nd CDC  
 (3) Other not automated CDC (specify): \_\_\_\_\_
- Underride (see specific CDC)*  
*[Between 2 CDS applicable vehicles (Bodytype, GV07 = 1-49)]*
- (4) 1st CDC  
 (5) 2nd CDC  
 (6) Other not automated CDC (specify): \_\_\_\_\_
- (7) Medium/heavy truck or bus override (of any configuration)  
 (9) Unknown

**HEADING ANGLE AT IMPACT FOR HIGHEST DELTA V**

Values: (000)-(359) Code actual value  
 (997) Noncollision  
 (998) Impact with object  
 (999) Unknown

53. Heading Angle For This Vehicle 016
54. Heading Angle For Other Vehicle 089

**RECONSTRUCTION DATA**

55. Towed Trailing Unit 0
- (0) No towed unit  
 (1) Yes—towed trailing unit  
 (9) Unknown
56. Documentation of Trajectory Data for This Vehicle 0
- (0) No  
 (1) Yes
57. Post Collision Condition of Tree or Pole (For Highest Delta V) 0
- (0) Not collision (for highest delta V) with tree or pole  
 (1) Not damaged  
 (2) Cracked/sheared  
 (3) Tilted < 45 degrees  
 (4) Tilted ≥ 45 degrees  
 (5) Uprooted tree  
 (6) Separated pole from base  
 (7) Pole replaced  
 (8) Other (specify): \_\_\_\_\_
- (9) Unknown

**ACCIDENT RECONSTRUCTION PROGRAMS HIGHEST DELTA V**

58. Basis for Total (Resultant) Delta V (highest) 01

(00) No vehicle inspection

*Delta V Calculated*

- (01) Reconstruction program  
 -damage only routine  
 (02) Reconstruction program  
 -damage and trajectory routine  
 (03) Missing vehicle algorithm

*Delta V Not Calculated*

- (04) At least one vehicle (which may be this vehicle) is beyond the scope of an acceptable reconstruction program, regardless of collision conditions.

*All vehicles within scope (CDC applicable) of reconstruction program but one of the collision conditions is beyond the scope of the reconstruction program or other acceptable reconstruction technique, regardless of adequacy of damage data.*

- (05) Rollover  
 (06) Other non-horizontal forces  
 (07) Sideswipe type damage  
 (08) Severe override  
 (09) Yielding object  
 (10) Overlapping damage  
 (11) All vehicle and collision conditions are within scope of one of the acceptable reconstruction programs, but there is insufficient data available, (specify): \_\_\_\_\_

- (98) Other, (specify): \_\_\_\_\_

## COMPUTER GENERATED CRASH SEVERITY

59. Total Delta V

01313 Nearest kmph (highest)       Nearest kmph (secondary)

(NOTE: 000 means less than 0.5 kmph)  
 (160) 159.5 kmph and above  
 (999) Unknown

60. Longitudinal Component of Delta V

⊖ 002 Highest-2 Nearest kmph (highest)       Nearest kmph (secondary)

(NOTE:   000 means greater than  
 -0.5 kmph and less than +0.5 kmph)  
 (±160) ±159.5 kmph and above  
 (  999) Unknown

61. Lateral Component of Delta V

⊕ 013 Highest13 Nearest kmph (highest)       Nearest kmph (secondary)

(NOTE:   000 means greater than -0.5 kmph  
 and less than +0.5 kmph)  
 (±160) ±159.5 kmph and above  
 (  999) Unknown

62. Energy Absorption

005.7005652 Nearest 100 joules (highest)       Nearest 100 joules (secondary)

(NOTE: 0000 means less than 50 joules)  
 (9997) 999,650 joules or more  
 (9999) Unknown

Highest

63. Impact Speed

998       Nearest kmph (highest)       Nearest kmph (secondary)

(NOTE: 000 means less than 0.5 kmph)  
 (160) 159.5 kmph and above  
 (998) Trajectory algorithm not run  
 (999) Unknown

## DELTA V CONFIDENCE LEVEL

64. Confidence In Reconstruction Program Results (For Highest Delta V)

1

- (0) No reconstruction  
 (1) Collision fits model — results appear reasonable  
 (2) Collision fits model — results appear high  
 (3) Collision fits model — results appear low  
 (4) Borderline reconstruction — results appear reasonable

## OTHER SPEED ESTIMATE

65. Barrier Equivalent Speed

Highest

0077 Nearest kmph (highest)       Nearest kmph (secondary)

(NOTE: 000 means less than 0.5 kmph)  
 (160) 159.5 kmph and above  
 (999) Unknown

IS MISSING VEHICLE ALGORITHM APPLICABLE FOR THIS VEHICLE? [ ] YES ☒ NO

IF YES: IS A COMPLETED PROGRAM SUMMARY INCLUDED? [ ] YES [ ] NO

## ESTIMATED DELTA V

## VEHICLE INSPECTION

66. Estimated Highest Delta V (Researcher Determined)

0

(0) Reconstruction Delta V coded

*Estimated Delta V*

- (1) Less than 10 kmph
- (2)  $\geq 10$  kmph but  $< 25$  kmph
- (3)  $\geq 25$  kmph but  $< 40$  kmph
- (4)  $\geq 40$  kmph but  $< 55$  kmph
- (5)  $\geq 55$  kmph

*Other estimates of damage severity*

- (6) Minor
- (7) Moderate
- (8) Severe
- (9) Unknown

67. Type of Vehicle Inspection

3

- (0) No inspection
- (1) Vehicle fully repaired-no damage evident
- (2) Partial inspection (specify):
- (3) Complete inspection

\*\*\* IF THE CDS APPLICABLE VEHICLE WAS NOT INSPECTED (I.E., GV67=0), \*\*\*

DO NOT COMPLETE THE EXTERIOR AND INTERIOR VEHICLE FORMS

\*\*\* IF GV07 DOES NOT EQUAL 01-49, DO NOT COMPLETE \*\*\*

THE EXTERIOR VEHICLE, INTERIOR VEHICLE,  
OCCUPANT ASSESSMENT, AND OCCUPANT INJURY FORMS.

## EXTERIOR VEHICLE FORM

**NATIONAL ACCIDENT SAMPLING SYSTEM  
CRASHWORTHINESS DATA SYSTEM**

1. Primary Sampling Unit Number <u>10</u> 2. Case Number - Stratum <u>9518</u>		3. Vehicle Number <u>02</u>	
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### VEHICLE IDENTIFICATION

VIN 1G6KF52Y8RU Model Year 94  
Vehicle Make (specify): CADILLAC Vehicle Model (specify): Deville Concours

## LOCATOR

Locate the end of the damage with respect to the vehicle longitudinal center line or bumper corner for end impacts or an undamaged axle for side impacts.

Specific Impact No.	Location of Direct Damage	Location of Field L	Location of Max Crush
01	BEGS 61 cm forward of (L) front axle	BEG 80 cm forward of (L) front axle	C-4

### CRUSH PROFILE IN CENTIMETERS

NOTES: Identify the plane at which the C-measurements are taken (e.g., at bumper, above bumper, at sill, above sill, etc.) and label adjustments (e.g., free space).

**Measure C1 to C6 from driver to passenger side in front or rear impacts and rear to front in side impacts.**

Free space value is defined as the distance between the baseline and the original body contour taken at the individual C locations. This may include the following: bumper lead, bumper taper, side protrusion, side taper, etc. Record the value for each C-measurement and maximum crush.

**Use as many lines/columns as necessary to describe each damage profile.**

[illegible]

# ORIGINAL SPECIFICATIONS WORK SHEET

Wheelbase 113.8 inches x 2.54 = 289 cm  
 Overall Length        inches x 2.54 = 533 cm  
 Maximum Width        inches x 2.54 = 195 cm  
 Curb Weight 3,984 pounds x 0.4536 = 1,807 kg  
 Average Track        inches x 2.54 = 155 cm  
 Front Overhang        inches x 2.54 = 115 cm  
 Rear Overhang        inches x 2.54 = 129 cm  
 Undeformed End Width        inches x 2.54 =        cm  
 Engine Size: cyl/disl.        cc x 0.001 =        L  
V8, 4.6 L 279 CID x 0.0164 = 4.6 L  
6-passenger, 4-door

## SPECIAL CRASH INVESTIGATION ADDENDUM

Submodel Designation: {specify} Concours Color: {specify} Brown Repair Cost: \$

Transmission: {circle} Automatic | Manual Speed: 3-speed 4-speed | 5-speed | Other:

Steering: {circle} Power-assisted | Manual Type: rack-and-pinion | worm-and-gear | Other  
{please describe}:

Brakes: {circle} Power-assisted | Manual Type: 4-wheel disc | 4-wheel drum | 4-wheel hydraulic  
front disc, rear drum | Other:

Observed Defects: {specify}

Fleet Type: {circle} Private vehicle | Rental vehicle | Leased vehicle | Commercial vehicle | Other  
{please describe}:



## VEHICLE DAMAGE SKETCH

<b>TIRE—WHEEL DAMAGE</b> a. Rotation physically restricted RF <u>2</u> LF <u>2</u> RR <u>2</u> LR <u>2</u> (1) Yes (2) No (8) NA (9) Unk.		<b>ORIGINAL SPECIFICATIONS</b> Wheelbase <u>289</u> cm Overall Length <u>533</u> cm Maximum Width <u>194.5</u> cm Curb Weight <u>1807</u> kg Average Track <u>155</u> cm Front Overhang <u>115</u> cm Rear Overhang <u>129</u> cm Undeformed End Width <u>N/A</u> cm Engine Size: cyl./displ. <u>4.6</u> L		<b>WHEEL STEER ANGLES</b> (For locked front wheels or displaced rear axles only) RF ± _____ ° LF ± _____ ° RR ± _____ ° LR ± _____ ° Within ± 5 degrees
<b>TYPE OF TRANSMISSION</b> <input type="checkbox"/> Manual <input checked="" type="checkbox"/> Automatic		<b>DRIVE WHEELS</b> <input checked="" type="checkbox"/> FWD <input type="checkbox"/> RWD <input type="checkbox"/> 4WD		
		Approximate Cargo Weight <u>0</u> kg		

**MEASUREMENTS IN CENTIMETERS**

Blue paint transfer to hoodcap

Blue paint transfer to door

POST-CRASH

Bumper corner 91 291 120 Bumper corner

Stringline

POST-CRASH

Bumper corner 121 291 91 Bumper corner

Stringline

**NOTES** Sketch new penmeter and cross hatch direct damage and single hatch induced damage on all views. Annotate observations which might be useful in reconstructing the accident (e.g., grass in tire bead, direction of stations, scuff on sidewalls, etc.). If pulling trailer, sketch type of trailer and damage received on the back of this page.

Annotate any damage caused by extrication such as component removal by torching, prying, or hydraulic shears.

# PASSENGER CAR SECTION

## BUICK Motor Div., General Motor Corp. MI

Type of Body Pass. Cap.	Model	Wheel Base	Dimensions Inches			Ship. Wt.	Tax H.P.	Factory List Price	Factory Del'd Price
			LT.	x	Wt. x Ht.				

Options Skylark: Destination Charges-\$495; V6 cyl 3.1 liter SFI OHV Gas Engine(L82)-\$350; Auto. Trans. 4-speed(MUX)-\$200; Astroroo(CF5)-\$595; Cruise Control(IC4)-\$225; Instrument Cluster-\$126; Paint (Lower Accent)-\$195; AM/FM Stereo Radio w/cassette(UM8)-\$165 w/CD(UP3)-\$256; 6-way Power Driver Seat(WG1)-\$305 Limited & Gran Sport-\$270; Bucket w/Recliners & Operating Console(AR9)-\$160; Power Windows(A31) (Coupe)-\$275 (Sedan)-\$340; Deluxe Headliner(Y73)-\$135; Remote Keyless Entry(AJ3)-\$135; Leather Bucket Seats(AR9)-\$345; Wheels (Styled Ploycast)-\$115 (Aluminum)-\$575

## CADILLAC Motor Car Div., General Motors Corp. MI

### 1993 DEVILLE SERIES V8 cyl 4.9 liter, SPFI Gas Engine(L26)

Bore & Stroke 3.62"x3.62"; Tax H.P. 41.93; P.D. 300 cu.in., 4.9 liter(L26)									
Auto. Trans. 4-speed w/overdrive									
6-PS 2-door Coupe J	6CD47	110.8"	203.3"	x	73.4" x 54.8"	3424	41.93	33,915	34,515
6-PS 4-door Sedan B	6CD69	113.8"	206.3"	x	73.4" x 55.1"	3510	41.93	32,990	33,590

### 1993 SIXTY SPECIAL SERIES V8 cyl 4.9 liter, SPFI Gas Engine(L26)

Bore & Stroke 3.62"x3.62"; Tax H.P. 41.93; P.D. 300 cu.in., 4.9 liter(L26)									
Auto. Trans. 4-speed w/overdrive									
6-PS 4-door Sedan	6869	113.8"	206.3"	x	73.4" x 55.1"	3554	41.93	37,230	37,830

### 1993 ELDORADO SERIES V8 cyl 4.9 liter, SPFI Gas Engine(L26)

Bore & Stroke 3.62"x3.62"; Tax H.P. 41.93; P.D. 300 cu.in., 4.9 liter(L26)									
Auto. Trans. 4-speed w/overdrive									
6-PS 2-door Coupe EL57	6EL57	108.0"	202.2"	x	75.5" x 54.0"	3516	41.93	33,990	34,590

### 1993 SEVILLE SERIES V8 cyl 4.9 liter, SPFI Gas Engine(L26)

Bore & Stroke 3.62"x3.62"; Tax H.P. 41.93; P.D. 300 cu.in., 4.9 liter(L26)									
Auto. Trans. 4-speed w/overdrive									
6-PS 4-door Touring Sedan	6CT69	113.8"	206.3"	x	73.4" x 55.1"	3556	41.93	36,310	36,910
6-PS 4-door Seville Sedan M	6KS69	111.0"	202.4"	x	74.4" x 54.0"	3596	41.93	36,990	37,590

### 1993 SEVILLE SERIES V8 cyl. 4.6 liter, MPFI Gas Fuel Injection Engine(L37)

Bore & Stroke 3.66"x3.31"; Tax H.P. 42.87; P.D. 279 cu.in., 4.6 liter									
Auto. Trans. 4-speed w/overdrive									
6-PS 4-door Sedan STS G	6KY69	111.0"	202.4"	x	74.4" x 54.0"	3807	42.87	41,990	42,590

(price includes \$1770 Federal Gas Gussley Tax)

### 1993 ALLANTE SERIES V8 cyl. 4.6 liter, MPFI Gas Fuel Injection Engine(L37)

Bore & Stroke 3.66"x3.31"; Tax H.P. 42.87; P.D. 279 cu.in., 4.6 liter									
Auto. Trans. 4-speed w/overdrive									
2-PS 2-door Convertible F	6VS67	99.4"	178.7"	x	73.4" x 51.5"	3664	42.87	61,675	62,275

(price includes \$1770 Federal Gas Gussley Tax)

Options Allante: Calif. Emission-\$100; Instrument Cluster-\$495; Paint & Colors-\$700

### 1993 FLEETWOOD SERIES RWD V8 cyl 5.7 liter

Bore & Stroke 4"x3.48"; Tax H.P. 51.2; P.D. 350 cu.in., 5.7 liter									
Auto. Trans. 4-speed w/overdrive									
6-PS 4-door Sedan L	6DW69	121.5"	225.1"	x	78.0" x 57.1"	4275	51.2	33,990.0	34,590

(price includes \$1770 Federal Gas Gussley Tax)

Options Cadillac: Destination charges-\$600; Radio AM/FM Stereo w/Compact Disc. & Cassette(UH)-\$395; W/Delco-Bose Sound System(PJBT)-\$576; W/Compact Disc.-\$72; Astroroo(CF5)-\$1550; Coachbuilder Limousine Package(FET)-\$1000; Leather Seating Area(YL1)-\$570; Lumbar Support Power-\$292; Roof-Full Padded Vinyl-\$925; Tires-Whitewall P255/60R18(QNY)-\$76; Traction Control(NW9)-\$175; Wheel Discs-Wire Locking(H91)-\$235; Cast Aluminum Wheels Lace(PH3)-\$235; Chrome Wheels(PO5)-\$1195

## CADILLAC Motor Car Div., General Motors Corp. MI

### 1994 DeVille Series FWD V8 cyl 4.9 liter, SPFI OHV Gas Engine(L26)(16 valve)

Bore & Stroke 3.623"x3.623"; Tax H.P. 42.0; SAE H.P. 200@4100; Torque 275@3000; 300 cu.in., 4.9 liter									
Auto. Trans. 4-speed(4T60-E); EPA Mileage Estimate 16/26									
6-PS 4-dr Sedan	6KD69	113.8"	209.7"	x	76.6" x 56.3"	3662	42.0	32,990	33,615

### 1994 DeVille Series FWD V8 cyl 4.6 liter SPFI DOHC Gas Engine(LD8)(32 valve)

Bore & Stroke 3.661"x3.307"; Tax H.P. 42.89; SAE H.P. 270@5600; Torque 300@4000; 279 cu.in., 4.6 liter									
Auto. Trans. 4-speed(4T80-E); EPA Mileage Estimate 16/25									
6-PS 4-dr Sedan	6KF69	113.8"	209.7"	x	76.6" x 56.0"	3996	42.89	37,990	38,615

### 1994 Fleetwood RWD V8 cyl 5.7 liter SFI Gas Engine(LT1)(16 valve)

Bore & Stroke 4.0"x3.48"; Tax H.P. 51.2; SAE H.P. 260@5000; Torque 335@3200; 350 cu.in., 5.7 liter									
Auto. Trans. 4-speed(M30); EPA Mileage Estimate 17/25									
6-PS 4-dr Sedan	6DW69	121.5"	225.0"	x	78.0" x 57.1"	4369	51.2	33,990	34,615
6-PS 4-dr Sedan Brougham	6DW69	121.5"	225.0"	x	78.0" x 57.1"	4389	51.2		

**CODES FOR OBJECT CONTACTED**

(99) Unknown event or object

[illegible]

## COLLISION DEFORMATION CLASSIFICATION

## HIGHEST DELTA "V"

Accident Event Sequence Number	Object Contacted	(1) (2) Direction of Force	(3) Deformation Location	(4) Longitudinal or Lateral Location	(5) Vertical or Lateral Location	(6) Type of Damage Distribution	(7) Deformation Extent
4. <u>01</u>	5. <u>01</u>	6. <u>09</u>	7. <u>L</u>	8. <u>Y</u>	9. <u>E</u>	10. <u>W</u>	11. <u>02</u>

## Second Highest Delta "V"

12. <u>    </u>	13. <u>    </u>	14. <u>    </u>	15. <u>    </u>	16. <u>    </u>	17. <u>    </u>	18. <u>    </u>	19. <u>    </u>
-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------

## CRUSH PROFILE IN CENTIMETERS

The crush profile for the damage described in the CDC(s) above should be documented in the appropriate space below. (ALL MEASUREMENTS ARE IN CENTIMETERS.)

## HIGHEST DELTA "V"

20. L	21. C <sub>1</sub>	C <sub>2</sub>	C <sub>3</sub>	C <sub>4</sub>	C <sub>5</sub>	C <sub>6</sub>	22. ±D
<u>177</u>	<u>000</u>	<u>003</u>	<u>008</u>	<u>011</u>	<u>005</u>	<u>004</u>	<u><sup>+</sup>133</u>

## Second Highest Delta "V"

23. L	24. C <sub>1</sub>	C <sub>2</sub>	C <sub>3</sub>	C <sub>4</sub>	C <sub>5</sub>	C <sub>6</sub>	25. ±D
<u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
<u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>

26. Undeformed End Width  
(Coded when highest severity impact is an end plane impact.) 998  
Code to the nearest centimeter  
(250) 250 centimeters or more  
(998) No highest severity end plane impact  
(999) Unknown

27. Direct Damage Width  
(For highest severity impact) 147  
Code to the nearest centimeter  
(250) 250 centimeters or more  
(999) Unknown

28. Original Wheelbase 289  
Code to the nearest centimeter  
(650) 650 centimeters or more  
(999) Unknown  
inches X 2.54 = centimeters

29. Original Average Track Width 155  
Code to the nearest centimeter  
(185) 185 centimeters or more  
(999) Unknown  
inches X 2.54 = centimeters

**FUEL SYSTEM**

30. Are CDCs Documented  
but Not Coded on The  
Automated File?

- (0) No  
(1) Yes

1

31. Researcher's Assessment of Vehicle  
Disposition

- (0) Not towed due to vehicle damage  
(1) Towed due to vehicle damage  
(9) Unknown

1

32. Is This A Multi-Stage Manufactured Vehicle  
And/Or A Certified Altered Vehicle?

- (0) No post manufacturer modifications  
(1) Yes - post manufacturer modifications  
(specify): \_\_\_\_\_

0

(Include photograph of CERTIFICATION  
PLACARD in case report)

- (9) Unknown if vehicle is modified

**FIRE OCCURRENCE**

33. Fire Occurrence  
(0) No fire

- Yes, fire occurred  
(1) Minor  
(2) Major  
(9) Unknown

0

34. Origin of Fire

- (0) No fire  
(1) Vehicle exterior (front, side, back, top)  
(2) Exhaust system  
(3) Fuel tank (and other fuel retention  
system parts)  
(4) Engine compartment  
(5) Cargo/trunk compartment  
(6) Instrument panel  
(7) Passenger compartment area  
(8) Other location (specify): \_\_\_\_\_

0

- (9) Unknown

35. Location of Fuel Tank-1 Filler Cap

2

36. Location of Fuel Tank-2 Filler Cap

0

- (0) No fuel tank  
(1) On back plane  
(2) Aft of center of the rear wheels (rear axle)  
on left side plane  
(3) Aft of center of the rear wheels (rear axle)  
on right side plane  
(4) Forward of center of the rear wheels (rear  
axle) on left side plane  
(5) Forward of center of the rear wheels (rear  
axle) on right side plane  
(6) Over the center of the rear wheels (rear  
axle) on left side plane  
(7) Over the center of the rear wheels (rear  
axle) on right side plane  
(8) Other (specify): \_\_\_\_\_  
(9) Unknown

37. Type of Fuel Tank-1

1

38. Type of Fuel Tank-2

0

- (0) No fuel tank (electrical vehicle)  
(1) Metallic  
(2) Non-metallic  
(9) Unknown

39. Location of Fuel Tank-1

1

40. Location of Fuel Tank-2

0

- (0) No fuel tank  
(1) Aft of center of the rear wheels (rear axle)  
centered  
(2) Aft of center of the rear wheels (rear axle)  
left side  
(3) Aft of center of the rear wheels (rear axle)  
right side  
(4) Forward of center of the rear wheels (rear  
axle) centered  
(5) Forward of center of the rear wheels (rear  
axle) left side  
(6) Forward of center of the rear wheels (rear  
axle) right side  
(7) Over center of the rear wheels (rear axle)  
(8) Other (specify): \_\_\_\_\_  
(9) Unknown

41. Damage to Fuel Tank-1

1

42. Damage to Fuel Tank-2

0

- (0) No fuel tank  
(1) No damage to fuel tank  
(2) Deformed, no seam failure  
(3) Deformed, with a seam failure  
(4) Punctured  
(5) Lacerated (ripped)  
(6) Abraded (scraped)  
(7) Filler neck separation from the fuel tank  
(8) Other damage (specify): \_\_\_\_\_  
(9) Unknown

75A



## INTERIOR VEHICLE FORM

1. Primary Sampling Unit Number 10

2. Case Number - Stratum 9518

3. Vehicle Number 02

### INTEGRITY

4. Passenger Compartment Integrity 00

(00) No integrity loss

Yes, Integrity Was Lost Through

- (01) Windshield
- (02) Door (side)
- (03) Door/hatch (back door)
- (04) Roof
- (05) Roof glass
- (06) Side window
- (07) Rear window (backlight)
- (08) Roof and roof glass
- (09) Windshield and door (side)
- (10) Windshield and roof
- (11) Side and rear window (side window and backlight)
- (12) Windshield and side window
- (13) Door and side window
- (98) Other combination of above (specify):

(99) Unknown

Door, Tailgate or Hatch Opening

5. LF 1 6. RF 1 7. LR 1 8. RR 1 9. TG/H 0

- (0) No door/gate/hatch
- (1) Door/gate/hatch remained closed and operational
- (2) Door/gate/hatch came open during collision
- (3) Door/gate/hatch jammed shut
- (8) Other (specify):
- (9) Unknown

Damage/Failure Associated with Door, Tailgate or Hatch Opening in Collision. If IV05-IV09  $\neq$  2, Then code 0

10. LF 0 11. RF 0 12. LR 0 13. RR 0 14. TG/H 0

- (0) No door/gate/hatch or door not opened

Door, Tailgate or Hatch Came Open During Collision

- (1) Door operational (no damage)
- (2) Latch/striker failure due to damage
- (3) Hinge failure due to damage
- (4) Door structure failure due to damage
- (5) Door support (i.e., pillar, sill, roof side rail, etc.) failure due to damage
- (6) Latch/striker and hinge failure due to damage
- (8) Other failure (specify):
- (9) Unknown

### GLAZING

Type of Window/Windshield Glazing

15. WS 1 16. LF 2 17. RF 2 18. LR 2 19. RR 2  
20. BL 1 21. Roof 0 22. Other 9

- (0) No glazing
- (1) AS-1 - Laminated
- (2) AS-2 - Tempered
- (3) AS-3 - Tempered-tinted (original)
- (4) AS-2 - Tempered-with after market tint
- (5) AS-3 - Tempered-tinted (with additional after market tint)
- (6) AS-14 - Glass/Plastic
- (7) Glazing removed prior to accident
- (8) Other (specify):
- (9) Unknown

Window Precrash Glazing Status

23. WS 1 24. LF 2 25. RF 2 26. LR 2 27. RR 2  
28. BL 1 29. Roof 0 30. Other 1

- (0) No glazing
- (1) Fixed
- (2) Closed
- (3) Partially opened
- (4) Fully opened
- (7) Glazing removed prior to accident
- (9) Unknown

Glazing Damage from Impact Forces

31. WS 1 32. LF 1 33. RF 1 34. LR 1 35. RR 1  
36. BL 1 37. Roof 0 38. Other 1

- (0) No glazing
- (1) No glazing damage from impact forces
- (2) Glazing in place and cracked from impact forces
- (3) Glazing in place and holed from impact forces
- (4) Glazing out-of-place (cracked or not) and not holed from impact forces
- (5) Glazing out-of-place and holed from impact forces
- (6) Glazing disintegrated from impact forces
- (7) Glazing removed prior to accident
- (9) Unknown if damaged

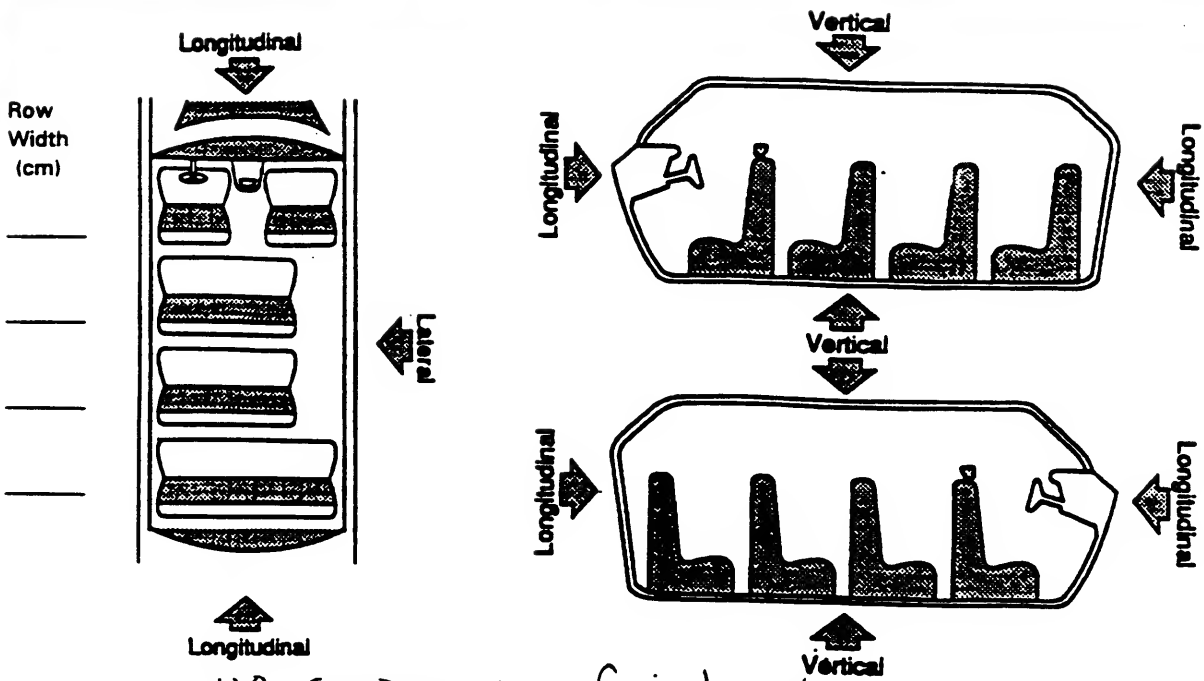
Glazing Damage from Occupant Contact

39. WS 1 40. LF 1 41. RF 1 42. LR 1 43. RR 1  
44. BL 1 45. Roof 0 46. Other 1

- (0) No glazing
- (1) No occupant contact to glazing
- (2) Glazing contacted by occupant but no glazing damage
- (3) Glazing in place and cracked by occupant contact
- (4) Glazing in place and holed by occupant contact
- (5) Glazing out-of-place (cracked or not) by occupant contact and not holed by occupant contact
- (6) Glazing out-of-place by occupant contact and holed by occupant contact
- (7) Glazing removed prior to accident
- (8) Glazing disintegrated by occupant contact
- (9) Unknown if contacted by occupant

# INTRUSION WORKSHEET

Note: Sketch intruded areas



NO EVIDENCE of intrusion

LOCATION OF INTRUSION	INTRUDED COMPONENT	(All Measurements Are in Centimeters)			DOMINANT CRUSH DIRECTION
		COMPARISON VALUE	INTRUDED VALUE	INTRUSION	
		-		=	
		-		=	
		-		=	
		-		=	
		-		=	
		-		=	
		-		=	
		-		=	
		-		=	
		-		=	
		-		=	
		-		=	
		-		=	
		-		=	
		-		=	

Document no more than the 15 most severe intrusions



## OCCUPANT AREA INTRUSION

Note: If no intrusions, leave variables IV47-IV86 blank.

	Location of Intrusion	Intruding Component	Magnitude of Intrusion	Dominant Crush Direction
1st	47. _____	48. _____	49. _____	50. _____
2nd	51. _____	52. _____	53. _____	54. _____
3rd	55. _____	56. _____	57. _____	58. _____
4th	59. _____	60. _____	61. _____	62. _____
5th	63. _____	64. _____	65. _____	66. _____
6th	67. _____	68. _____	69. _____	70. _____
7th	71. _____	72. _____	73. _____	74. _____
8th	75. _____	76. _____	77. _____	78. _____
9th	79. _____	80. _____	81. _____	82. _____
10th	83. _____	84. _____	85. _____	86. _____

## LOCATION OF INTRUSION

Front Seat  
 (11) Left  
 (12) Middle  
 (13) Right

Second Seat  
 (21) Left  
 (22) Middle  
 (23) Right

Third Seat  
 (31) Left  
 (32) Middle  
 (33) Right

Fourth Seat  
 (41) Left  
 (42) Middle  
 (43) Right

(97) Catastrophic  
 (98) Other enclosed area (specify) \_\_\_\_\_

(99) Unknown

## INTRUDING COMPONENT

*Interior Components*

- (01) Steering assembly
- (02) Instrument panel left
- (03) Instrument panel center
- (04) Instrument panel right
- (05) Toe pan
- (06) A (A1/A2)-pillar
- (07) B-pillar
- (08) C-pillar
- (09) D-pillar
- (10) Side panel - forward of the A1/A2-pillar
- (11) Door panel (side)
- (12) Side panel - rear of the B-pillar
- (13) Roof (or convertible top)
- (14) Roof side rail
- (15) Windshield
- (16) Windshield header
- (17) Window frame
- (18) Floor pan (includes sill)
- (19) Backlight header
- (20) Front seat back
- (21) Second seat back
- (22) Third seat back
- (23) Fourth seat back
- (24) Fifth seat back
- (25) Seat cushion
- (26) Back door/panel (e.g., tailgate)
- (27) Other interior component (specify): \_\_\_\_\_

*Exterior Components*

- (30) Hood
- (31) Outside surface of this vehicle (specify): \_\_\_\_\_
- (32) Other exterior object in the environment (specify): \_\_\_\_\_
- (33) Unknown exterior object
- (97) Catastrophic
- (98) Intrusion of unlisted component(s) (specify): \_\_\_\_\_
- (99) Unknown

## MAGNITUDE OF INTRUSION

- (1)  $\geq 3$  centimeters but  $< 8$  centimeters
- (2)  $\geq 8$  centimeters but  $< 15$  centimeters
- (3)  $\geq 15$  centimeters but  $< 30$  centimeters
- (4)  $\geq 30$  centimeters but  $< 46$  centimeters
- (5)  $\geq 46$  centimeters but  $< 61$  centimeters
- (6)  $\geq 61$  centimeters
- (7) Catastrophic
- (9) Unknown

## DOMINANT CRUSH DIRECTION

- (1) Vertical
- (2) Longitudinal
- (3) Lateral
- (7) Catastrophic
- (9) Unknown

## STEERING RIM/SPOKE DEFORMATION

(All Measurements Are in Centimeters)

COMPARISON VALUE	—	DAMAGE VALUE	=	DEFORMATION
------------------	---	--------------	---	-------------

	—		=	
--	---	--	---	--

	—		=	
--	---	--	---	--

	—		=	
--	---	--	---	--

	—		=	
--	---	--	---	--

NO DEFORMATION

## STEERING COLUMN

## INSTRUMENT PANEL

## 87. Steering Column Type

- (1) Fixed column  
 (2) Tilt column  
 (3) Telescoping column  
 (4) Tilt and telescoping column  
 (8) Other column type (specify):  
 (9) Unknown

## 88. Tilt Steering Column Adjustment

- (0) No tilt steering column  
 (1) Full up  
 (2) Between full up and center  
 (3) Center  
 (4) Between center and full down  
 (5) Full down  
 (9) Unknown

## 89. Telescoping Steering Column Adjustment

- (0) No telescoping steering column  
 (1) Full back  
 (2) Between full back and midpoint  
 (3) Midpoint  
 (4) Between midpoint and full forward  
 (5) Full forward  
 (9) Unknown

## 90. Steering Rim/Spoke Deformation

- Code actual measured  
 deformation to the nearest centimeter  
 (00) No steering rim deformation  
 (01-14) Actual measured value in centimeters  
 (15) 15 centimeters or more  
 (98) Observed deformation cannot be measured  
 (99) Unknown

## 91. Location of Steering Rim/Spoke Deformation

- (00) No steering rim deformation

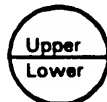
## Quarter Sections

- (01) Section A  
 (02) Section B  
 (03) Section C  
 (04) Section D



## Half Sections

- (05) Upper half of rim/spoke  
 (06) Lower half of rim/spoke  
 (07) Left half of rim/spoke  
 (08) Right half of rim/spoke



- (09) Complete steering wheel collapse  
 (10) Undetermined location  
 (99) Unknown

## 92. Odometer Reading

\_\_\_\_\_ kilometers  
 Code to the nearest 1,000 kilometers  
 (000) No odometer  
 (001) Less than 1,500 kilometers  
 (500) 499,500 kilometers or more  
 (999) Unknown  
 9069 miles X 1.6093 = 14595.1 kilometers

Source: ODometer

## 93. Instrument Panel Damage from Occupant Contact?

- (0) No  
 (1) Yes  
 (9) Unknown

## 94. Type of Knee Bolster Covering

- (0) No knee bolster  
 (1) Padded  
 (2) Rigid plastic  
 (8) Other (specify):  
 (9) Unknown

## 95. Knee Bolsters Deformed from Occupant Contact?

- (0) No knee bolster  
 (1) No deformation  
 (2) Yes - deformation  
 (9) Unknown

## 96. Did Glove Compartment Door Open During Collision(s)?

- (0) No glove compartment door  
 (1) No - door did not open  
 (2) Yes - door opened  
 (9) Unknown

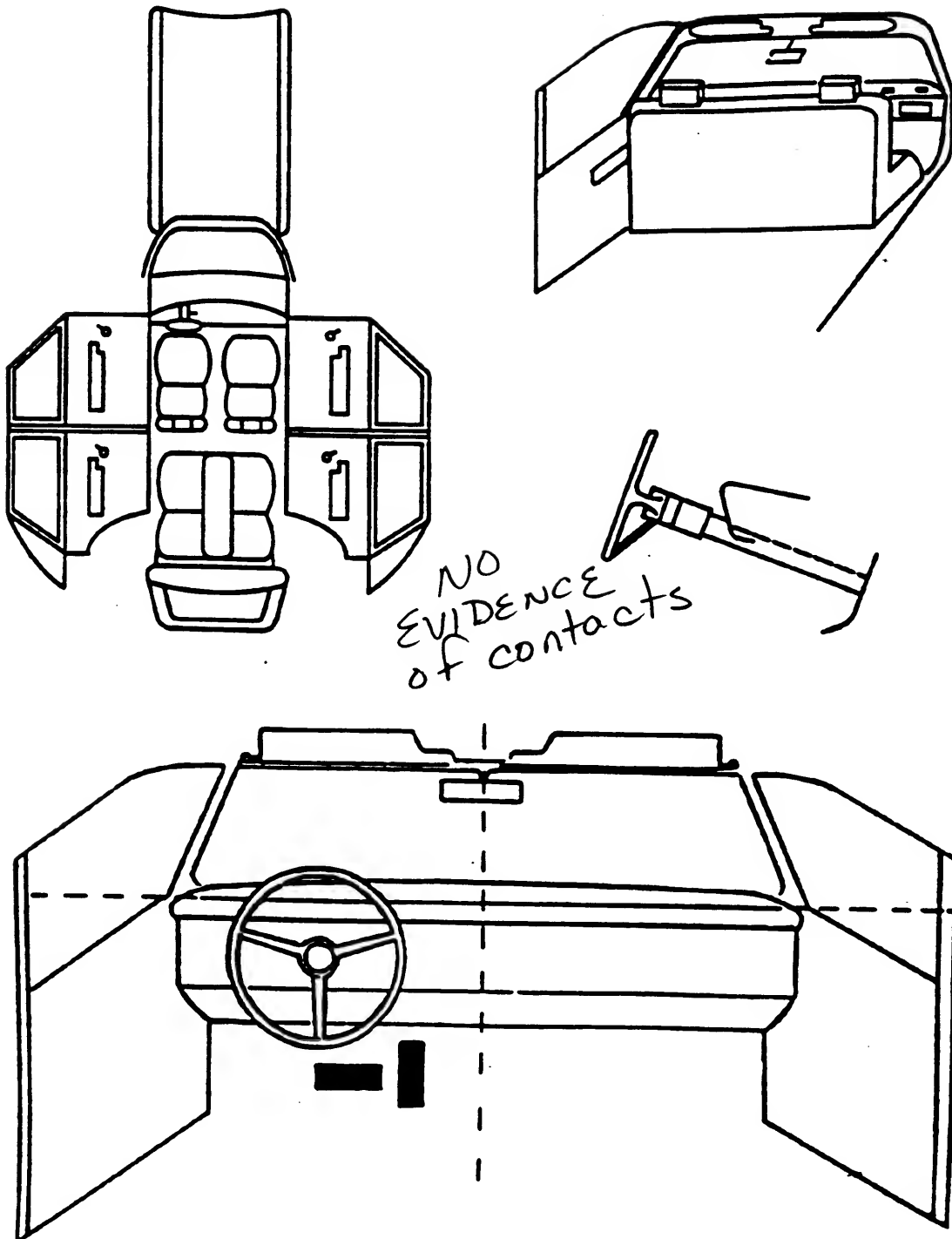
## 97. Adaptive (Assistive) Driving Equipment

- (0) No adaptive driving equipment  
 (1) Adaptive driving equipment installed  
 (Check all that apply.)  
☐ Hand controls for braking/acceleration  
☐ Steering control devices (attached to OEM steering wheel)  
☐ Steering knob attached to steering wheel  
☐ Low effort power steering (unit or device)  
☐ Replacement steering wheel (i.e., reduced diameter)  
☐ Joy-stick steering controls  
☐ Wheelchair tie-downs  
☐ Modification to seat belts (specify):  
☐ Additional or relocated switches (specify):  
☐ Raised roof  
☐ Wall-mounted head rest (used behind wheelchair)  
☐ Other adaptive device (specify):

(9) Unknown

## VEHICLE INTERIOR SKETCHES

Note area of ejection/entrapment



Sketch windshield contact(s) and the damaged area(s) on the instrument panel outline (e.g., radio, glove compartment, damage to instrument panel structure).

Cross hatch contact points, draw spider webs or use other annotation as may be appropriate.

Annotate the contacted area with a letter (begin with A) and list on the Points of Occupant Contact page.

## POINTS OF OCCUPANT CONTACT

Contact	Interior Component Contacted	Occupant No. If Known	Body Region If Known	Supporting Physical Evidence	Confidence Level of Contact Point
A					
B					
C					
D					
E					
F					
G					
H					
I					
J					
K					
L					
M					
N					

## FRONT

- (001) Windshield  
 (002) Mirror  
 (003) Sunvisor  
 (004) Steering wheel rim  
 (005) Steering wheel hub/spoke  
 (006) Steering wheel (combination of codes 004 and 005)  
 (007) Steering column, transmission selector lever, other attachment  
 (008) Cellular telephone or CB radio  
 (009) Add on equipment (e.g., tape deck, air conditioner)  
 (010) Left instrument panel and below  
 (011) Center instrument panel and below  
 (012) Right instrument panel and below  
 (013) Glove compartment door  
 (014) Knee bolster  
 (015) Windshield including one or more of the following: front header, A (A1/A2)-pillar, instrument panel, mirror, or steering assembly (driver side only)  
 (016) Windshield including one or more of the following: front header, A (A1/A2)-pillar, instrument panel, or mirror (passenger side only)  
 (017) Windshield reinforced by exterior object, (specify):  
 (019) Other front object (specify):

## CODES FOR INTERIOR COMPONENTS

## LEFT SIDE

- (051) Left side interior surface, excluding hardware or armrests  
 (052) Left side hardware or armrest  
 (053) Left A (A1/A2)-pillar  
 (054) Left B-pillar  
 (055) Other left pillar (specify):  
 (056) Left side window glass  
 (057) Left side window frame  
 (058) Left side window sill  
 (059) Left side window glass including one or more of the following: frame, window sill, A (A1/A2)-pillar, B-pillar, or roof side rail.  
 (060) Other left side object (specify):

## RIGHT SIDE

- (101) Right side interior surface, excluding hardware or armrests  
 (102) Right side hardware or armrest  
 (103) Right A (A1/A2)-pillar  
 (104) Right B-pillar  
 (105) Other right pillar (specify):  
 (106) Right side window glass  
 (107) Right side window frame  
 (108) Right side window sill  
 (109) Right side window glass including one or more of the following: frame, window sill, A (A1/A2)-pillar, B-pillar, or roof side rail.  
 (110) Other right side object (specify):

## INTERIOR

- (151) Seat, back support  
 (152) Belt restraint webbing/buckle  
 (153) Belt restraint B-pillar or door frame attachment point  
 (154) Other restraint system component (specify):  
 (155) Head restraint system  
 (160) Other occupants (specify):  
 (161) Interior loose objects  
 (162) Child safety seat (specify):  
 (163) Other interior object (specify):

## AIR BAG

- (170) Air bag-driver side  
 (175) Air bag compartment cover-driver side  
 (180) Air bag-passenger side  
 (185) Air bag compartment cover-passenger side  
 (190) Other air bag (specify)  
 (195) Other air bag compartment cover (specify)

## ROOF

- (201) Front header  
 (202) Rear header  
 (203) Roof left side rail  
 (204) Roof right side rail  
 (205) Roof or convertible top

## FLOOR

- (251) Floor (including toe pan)  
 (252) Floor or console mounted transmission lever, including console  
 (253) Parking brake handle  
 (254) Foot controls including parking brake

## REAR

- (301) Backlight (rear window)  
 (302) Backlight storage rack, door, etc.  
 (303) Other rear object (specify):

## ADAPTIVE (ASSISTIVE) DRIVING EQUIPMENT

- (401) Hand controls for braking/acceleration  
 (402) Steering control devices (attached to OEM steering wheel)  
 (403) Steering knob attached to steering wheel  
 (405) Replacement steering wheel (i.e., reduced diameter)  
 (406) Joy stick steering controls  
 (407) Wheelchair tie-downs  
 (408) Modification to seat belts, (specify):  
 (409) Additional or relocated switches, (specify):  
 (410) Raised roof  
 (411) Wall mounted head rest (used behind wheel chair)  
 (412) Other adaptive device (specify):

## CONFIDENCE LEVEL OF CONTACT POINT

- (1) Certain  
 (2) Probable  
 (3) Possible  
 (9) Unknown

# MANUAL RESTRAINTS

**NOTES:** Encode the applicable data for each seat position in the vehicle. The attribute for the variable may be found below. Restraint systems should be assessed during the vehicle inspection then coded on the Occupant Assessment Form. If a Child safety seat is present, encode the data on the back of this page. If the vehicle has automatic restraints available, encode the appropriate data on the back of the previous page.

		Left	Center	Right
FIRST	Availability	4	3	4
	Evidence of usage	04	00	04
	Used in this crash?	04	00	04
	Proper Use	9	0	9
	Failure Modes	1	0	1
	Anchorage Adjustment	2	0	4
SECOND	Availability	4	3	4
	Evidence of usage	00	00	04
	Used in this crash?	00	00	00
	Proper Use	0	0	0
	Failure Modes	0	0	0
	Anchorage Adjustment	1	0	1
OTHER	Availability			
	Evidence of usage			
	Used in this crash?			
	Proper Use			
	Failure Modes			
	Anchorage Adjustment			

## Manual (Active) Belt System Availability

- (0) None available
- (1) Belt removed/destroyed
- (2) Shoulder belt
- (3) Lap belt
- (4) Lap and shoulder belt
- (5) Belt available - type unknown

## Integral Belt Partially Destroyed

- (6) Shoulder belt (lap belt destroyed/removed)
- (7) Lap belt (shoulder belt destroyed/removed)
- (8) Other belt (specify):

(9) Unknown

## Manual (Active) Belt System Use

- (00) None used, not available, or belt removed/destroyed
- (01) Inoperable (specify):

- (02) Shoulder belt
- (03) Lap belt
- (04) Lap and shoulder belt
- (05) Belt used - type unknown
- (08) Other belt used (specify):

- (12) Shoulder belt used with child safety seat
- (13) Lap belt used with child safety seat
- (14) Lap and shoulder belt used with child safety seat
- (15) Belt used with child safety seat type unknown
- (18) Other belt used with child safety seat (specify):
- (99) Unknown if belt used

## Proper Use of Manual (Active) Belts

- (0) None used or not available
- (1) Belt used properly
- (2) Belt used properly with child safety seat

## Belt Used Improperly

- (3) Shoulder belt worn under arm
- (4) Shoulder belt worn behind back or seat
- (5) Belt worn around more than one person
- (6) Lap belt worn on abdomen
- (7) Lap belt or lap and shoulder belt used improperly with child safety seat (specify):
- (8) Other improper use of manual belt system (specify):
- (9) Unknown

## Manual (Active) Belt Failure Modes During Accident

- (0) No manual belt used or not available
- (1) No manual belt failure(s)
- (2) Torn webbing (stretched webbing not included)
- (3) Broken buckle or latchplate
- (4) Upper anchorage separated
- (5) Other anchorage separated (specify):
- (6) Broken retractor
- (7) Combination of above (specify):
- (8) Other manual belt failure (specify):
- (9) Unknown

## Shoulder Belt Upper Anchorage Adjustment

- (0) No shoulder belt
- (1) No upper anchorage adjustment for shoulder belt

## Adjustable shoulder Belt Upper Anchorage

- (2) In full up position
- (3) In mid position
- (4) In full down position
- (5) Position unknown
- (9) Unknown if position has adjustable upper anchorage adjustment

**AUTOMATIC RESTRAINTS**

NOTES: Encode the data for each applicable front seat position. The attribute for the variables may be found below. Restraint systems should be assessed during the vehicle inspection then coded on the Occupant Assessment Form.

**AIR BAGS**

		Left Front	Right Front	Other
F I R S T	Availability/Function	1	1	
	Deployment	7	7	
	Failure	1	1	

**Air Bag System Availability/Function**

(0) Not equipped/not available

(1) Air bag

**Non-functional**

(2) Air bag disconnected (specify): \_\_\_\_\_

(3) Air bag not reinstalled

(9) Unknown

**Are There Indications of Air Bag System Failure? (This Occupant Position)**

(0) Not equipped/not available

(1) No

(2) Yes (specify): \_\_\_\_\_

(9) Unknown

**Frontal Air Bag System Deployment (This Occupant Position)**

(0) Not equipped/not available

(1) Deployed during accident (as a result of impact)

(2) Deployed inadvertently just prior to accident

(3) Deployed, accident sequence undetermined

(4) Deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)

(5) Unknown if deployed

(7) Nondeployed

(9) Unknown

**Air Bag(s) Deployment, Other Than First Seat Frontal (This Occupant Position)**

(0) Not equipped with an "other" air bag

(1) Deployed during accident (as a result of impact)

(2) Deployed inadvertently just prior to accident

(3) Deployed, details unknown

(4) Deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)

(5) Unknown if deployed

(7) Nondeployed

(9) Unknown

**AUTOMATIC BELTS**

		Left	Right
F I R S T	Availability/Function		
	Use		
	Type		
	Proper Use		
	Failure Modes		

**Automatic (Passive) Belt System Availability/Function**

(0) Not equipped/not available

(1) 2 point automatic belts

(2) 3 point automatic belts

(3) Automatic belts - type unknown

**Non-functional**

(4) Automatic belts destroyed or rendered inoperative

(9) Unknown

**Automatic (Passive) Belt System Use**

(0) Not equipped/not available/destroyed or rendered inoperative

(1) Automatic belt in use

(2) Automatic belt not in use (manually disconnected, motorized track inoperative)

(3) Automatic belt use unknown

(9) Unknown

**Automatic (Passive) Belt System Type**

(0) Not equipped/not available

(1) Non-motorized system

(2) Motorized system

(9) Unknown

**Proper Use of Automatic (Passive) Belt System**

(0) Not equipped/not available/not used

(1) Automatic belt used properly

(2) Automatic belt used properly with child safety seat

**Automatic Belt Used Improperly**

(3) Automatic shoulder belt worn under arm

(4) Automatic shoulder belt worn behind back

(5) Automatic belt worn around more than one person

(6) Lap portion of automatic belt worn on abdomen

(7) Automatic lap and shoulder belt or automatic shoulder belt used improperly with child safety seat (specify): \_\_\_\_\_

(8) Other improper use of automatic belt system (specify): \_\_\_\_\_

(9) Unknown

**Automatic (Passive) Belt Failure Modes During Accident**

(0) Not equipped/not available/not in use

(1) No automatic belt failure(s)

(2) Torn webbing (stretched webbing not included)

(3) Broken buckle or latchplate

(4) Upper anchorage separated

(5) Other anchorage separated (specify): \_\_\_\_\_

(6) Broken retractor

(7) Combination of above (specify): \_\_\_\_\_

(8) Other automatic belt failure (specify): \_\_\_\_\_

(9) Unknown

# FIRST SEAT FRONTAL AIR BAGS

**NOTES:** Encode the applicable data for the driver and first seat passenger in the vehicle. The attribute for the variable may be found below. Restraint systems should be assessed during the vehicle inspection then coded on the Occupant Assessment Form.

	Driver	Passenger
Type of air bag?	1	1
Flaps open at tear points?	7	7
Flaps damaged?	7	7
Air bag damaged?	97	97
Source of air bag damage	97	97
Air bag tethered?	7	7
Air bag have vent ports?	7	7
Other occupant contact air bag?	7	7
Occupant wearing eyewear?	7	7

## Type of Air Bag

- (0) Not equipped/not available
- (1) Original manufacturer installed system
- (2) Retrofitted air bag
- (3) Replacement air bag
- (8) Unknown type of air bag
- (9) Unknown

## Did Air Bag Module Cover Flap(s) Open At Designated Tear Points?

- (0) Not equipped/not available
- (1) No
- (2) Yes
- (3) Deployed, unknown if flap(s) opened at designated tear points
- (7) Not deployed
- (8) Unknown if deployed
- (9) Unknown

## Were Air Bag Module Cover Flap(s) Damaged?

- (0) Not equipped/not available
- (1) No
- (2) Yes (specify):
- (3) Deployed, unknown if air bag module cover flap(s) damaged
- (7) Not deployed
- (8) Unknown if deployed
- (9) Unknown

## Was There Damage To The Air Bag?

- (00) Not equipped/not available
- (01) Not damaged

### Yes - Air Bag Damage

- (02) Ruptured
- (03) Cut
- (04) Torn
- (05) Holed
- (06) Burned
- (07) Abraded
- (88) Other damage (specify):

- (95) Damaged, details unknown
- (96) Deployed, unknown if damaged
- (97) Not deployed
- (98) Unknown if deployed
- (99) Unknown

## Source of Air Bag Damage

- (00) Not equipped/not available
- (01) Not damaged
- (02) Object worn by occupant, (specify):
- (03) Object carried by occupant, (specify):
- (04) Adaptive/assistive controls, (specify):
- (05) Fire in vehicle
- (06) Thermal burns
- (07) Rescue or emergency efforts
- (88) Other damage source (specify):

- (95) Damaged, unknown source
- (96) Deployed, unknown if damaged
- (97) Not deployed
- (98) Unknown if deployed
- (99) Unknown

## Was The Air Bag Tethered?

- (0) Not equipped/not available
- (1) No
- (2) Yes (specify number of tether straps):
- (3) Deployed, unknown if tethered
- (7) Not deployed
- (8) Unknown if deployed
- (9) Unknown

## Did The Air Bag Have Vent Ports?

- (0) Not equipped/not available
- (1) No
- (2) Yes (specify number of vent ports):
- (3) Deployed, unknown if vent ports present
- (7) Not deployed
- (8) Unknown if deployed
- (9) Unknown

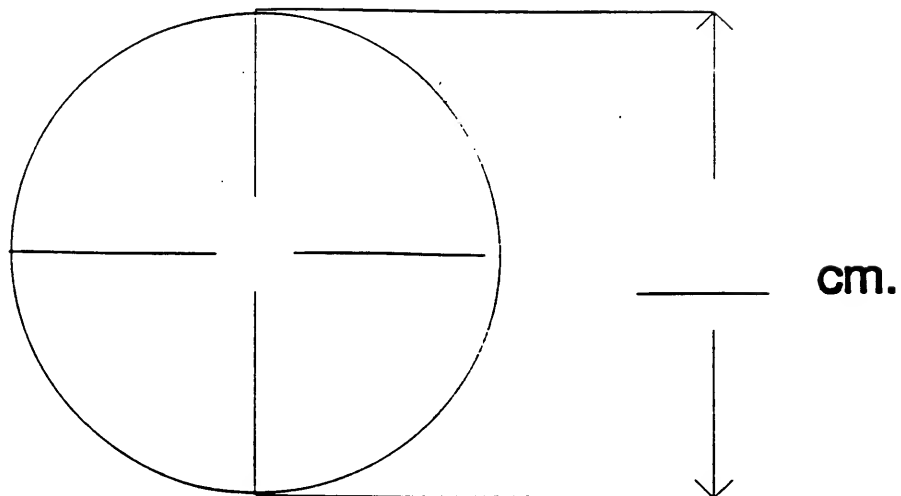
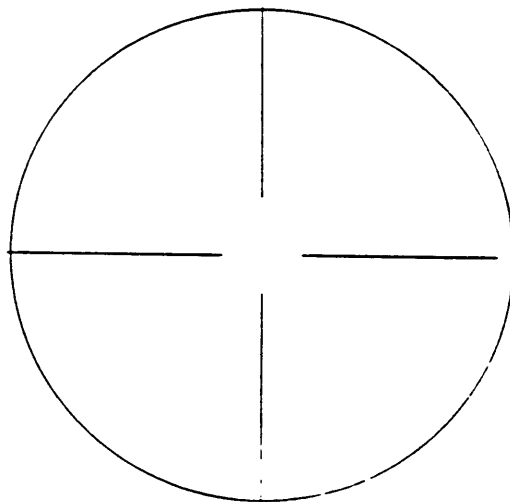
## Was the Air Bag in this Occupant's Position Contacted by Another Occupant?

- (0) Not equipped/not available
- (1) No
- (2) Yes (specify):
- (3) Deployed, unknown if other occupant contact to air bag
- (7) Not deployed
- (8) Unknown if deployed
- (9) Unknown

## Was This Occupant Wearing Eye-wear?

- (0) Not equipped/not available
- (1) No
- (2) Eyeglasses/sunglasses
- (3) Contact lenses
- (4) Deployed, unknown if eyewear worn
- (7) Not deployed
- (8) Unknown if deployed
- (9) Unknown



**DRIVER AIR BAG DAMAGE AND CONTACT SKETCHES****1. SKETCH DAMAGE AND CONTACT EVIDENCE ON DRIVER AIR BAG (Front)****2. SKETCH DAMAGE AND CONTACT EVIDENCE ON DRIVER AIR BAG (Back)**

# DRIVER AIR BAG SKETCHES (Cont'd)

## 3. DRIVER AIR BAG MODULE COVER FLAP SIZE (DOUBLE)

a. Upper Flap

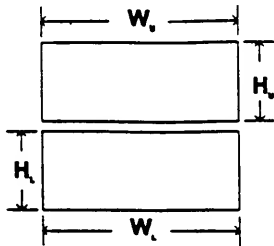
b. Lower Flap

width ( $W_U$ ) \_\_\_\_\_

width ( $W_L$ ) \_\_\_\_\_

height ( $H_U$ ) \_\_\_\_\_

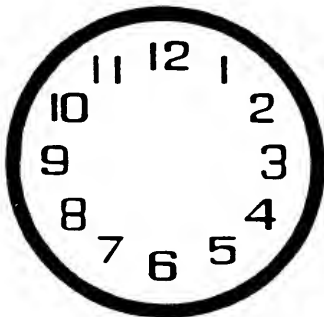
height ( $H_L$ ) \_\_\_\_\_



## 4. SKETCH OF OTHER TYPE OF AIR BAG MODULE FLAP AND SIZE

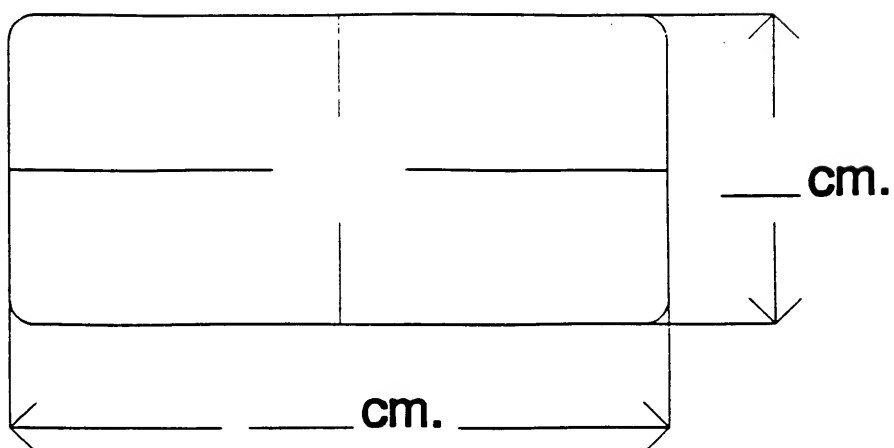
## 5. SKETCH OF OTHER TYPE OF AIR BAG VENT PORTS

## 6. SKETCH LOCATION OF CIRCULAR AIR BAG VENT PORTS

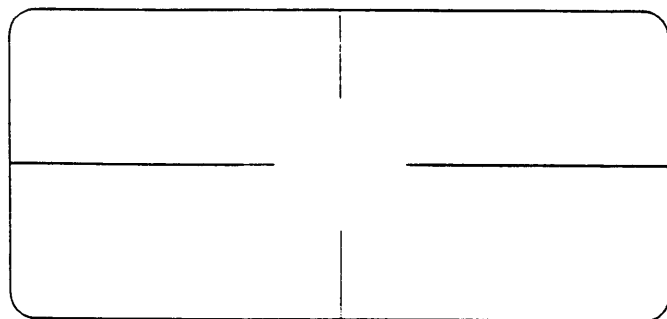


## PASSENGER AIR BAG DAMAGE AND CONTACT SKETCHES

## 1. SKETCH DAMAGE AND CONTACT EVIDENCE ON PASSENGER AIR BAG (Front)



## 2. SKETCH DAMAGE AND CONTACT EVIDENCE ON PASSENGER AIR BAG (Back)



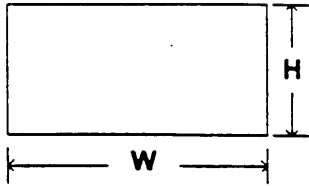
# PASSENGER AIR BAG SKETCHES (Cont'd)

## 3. PASSENGER AIR BAG MODULE COVER FLAP SIZE (SINGLE)

a. Flap

width (W) \_\_\_\_\_

height (H) \_\_\_\_\_



## 4. PASSENGER AIR BAG MODULE COVER FLAP SIZE (DOUBLE)

a. Upper Flap

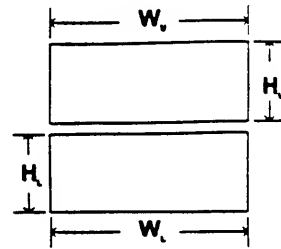
b. Lower Flap

width ( $W_U$ ) \_\_\_\_\_

width ( $W_L$ ) \_\_\_\_\_

height ( $H_U$ ) \_\_\_\_\_

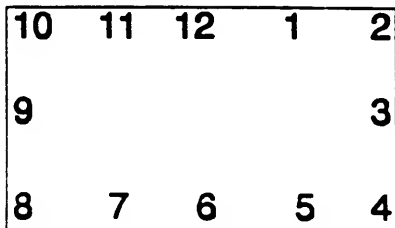
height ( $H_L$ ) \_\_\_\_\_



## 5. SKETCH OF OTHER TYPE OF AIR BAG MODULE FLAP AND SIZE

## 6. SKETCH OF OTHER TYPE OF AIR BAG VENT PORTS

## 7. SKETCH LOCATION OF RECTANGULAR AIR BAG VENT PORTS



**"OTHER" AIR BAG DAMAGE AND CONTACT SKETCHES**

1. SKETCH DAMAGE AND CONTACT EVIDENCE ON "OTHER" AIR BAG (Front)

2. SKETCH DAMAGE AND CONTACT EVIDENCE ON "OTHER" AIR BAG (Back)

**"OTHER" AIR BAG SKETCHES (Cont'd)**

**3. SKETCH AIR BAG MODULE FLAP AND SIZE OR OPENING FOR AIRBAG**

**4. SKETCH AIR BAG VENT PORTS**

## HEAD RESTRAINTS/SEAT EVALUATION

NOTES: Encode the applicable data for each seat position in the vehicle. The attribute for these variables may be found at the bottom of the page. Head restraint type/damage and seat type/performance should be assessed during the vehicle inspection then coded on the Occupant Assessment Form.

		Left	Center	Right
F I R S T	Head Restraint Type/Damage	3	0	3
	Seat Type	06	06	06
	Seat Performance	1	1	1
	Seat Orientation	1	1	1
	Seat Track Position	5	5	5
	Seat Back Incline Pre/Post Impact	23	23	23
S E C O N D	Head Restraint Type/Damage	1	1	1
	Seat Type	03	03	03
	Seat Performance	1	1	1
	Seat Orientation	1	1	1
	Seat Track Position	1	1	1
	Seat Back Incline Pre/Post Impact	01	01	01
T H I R D	Head Restraint Type/Damage			
	Seat Type			
	Seat Performance			
	Seat Orientation			
	Seat Track Position			
	Seat Back Incline Pre/Post Impact			
O T H E R	Head Restraint Type/Damage			
	Seat Type			
	Seat Performance			
	Seat Orientation			
	Seat Track Position			
	Seat Back Incline Pre/Post Impact			

DESCRIBE ANY INDICATION OF ABNORMAL OCCUPANT POSTURE  
(I.E., UNUSUAL OCCUPANT CONTACT PATTERN)

## HEAD RESTRAINTS/SEAT EVALUATION

## Head Restraint Type/Damage by Occupant at This Occupant Position

- (0) No head restraints
- (1) Integral — no damage
- (2) Integral — damaged during accident
- (3) Adjustable — no damage
- (4) Adjustable — damaged during accident
- (5) Add-on — no damage
- (6) Add-on — damaged during accident
- (8) Other  
Specify: \_\_\_\_\_
- (9) Unknown

## Seat Type (this Occupant Position)

- (00) Occupant not seated or no seat
- (01) Bucket
- (02) Bucket with folding back
- (03) Bench
- (04) Bench with separate back cushions
- (05) Bench with folding back(s)
- (06) Split bench with separate back cushions
- (07) Split bench with folding back(s)
- (08) Pedestal (i.e., column supported)
- (09) Other seat type (specify): \_\_\_\_\_
- (10) Box mounted seat (i.e., van type)
- (99) Unknown

## Seat Performance (this Occupant Position)

- (0) Occupant not seated or no seat
- (1) No seat performance failure(s)
- (2) Seat adjusters failed
- (3) Seat back folding locks or "seat back" failed (specify): \_\_\_\_\_
- (4) Seat tracks/anchors failed
- (5) Deformed by impact of occupant
- (6) Deformed by passenger compartment intrusion (specify): \_\_\_\_\_
- (7) Combination of above (specify): \_\_\_\_\_
- (8) Other (specify): \_\_\_\_\_
- (9) Unknown

## Seat Orientation (this Occupant Position)

- (0) Occupant not seated or no seat
- (1) Forward facing seat
- (2) Rear facing seat
- (3) Side facing seat (inward)
- (4) Side facing seat (outward)
- (8) Other (specify): \_\_\_\_\_
- (9) Unknown

## Seat Track Adjusted Position Prior To Impact

- (0) Occupant not seated or no seat
- (1) Non-adjustable seat track

## Adjustable Seat Track

- (2) Seat at forward most track position
- (3) Seat between forward most and middle track positions
- (4) Seat at middle track position
- (5) Seat between middle and rear most track positions
- (6) Seat at rear most track position
- (9) Unknown

## Seat Back Incline Prior and Post Impact

- (00) Occupant not seated or no seat
- (01) Not adjustable

## Upright prior to impact

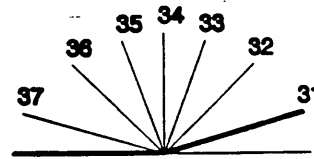
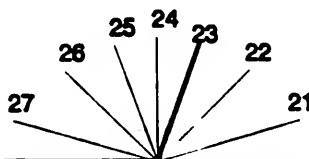
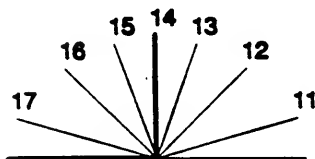
- (11) Moved to completely rearward position
- (12) Moved to rearward midrange position
- (13) Moved to slightly rearward position
- (14) Retained pre-impact position
- (15) Moved to slightly forward position
- (16) Moved to forward midrange position
- (17) Moved to completely forward position

## Slightly reclined prior to impact

- (21) Moved to completely rearward position
- (22) Moved to rearward midrange position
- (23) Retained pre-impact position
- (24) Moved to upright position
- (25) Moved to slightly forward position
- (26) Moved to forward midrange position
- (27) Moved to completely forward position

## Completely reclined prior to impact

- (31) Retained pre-impact position
- (32) Moved to rearward midrange position
- (33) Moved to slightly rearward position
- (34) Moved to upright position
- (35) Moved to slightly forward position
- (36) Moved to forward midrange position
- (37) Moved to completely forward position
- (99) Unknown



Coding diagrams for Seat Back Incline Position Prior and Post Impact

DESCRIBE ANY INDICATION OF ABNORMAL OCCUPANT POSTURE  
(I.E., UNUSUAL OCCUPANT CONTACT PATTERN)



**EJECTION/ENTRAPMENT DATA**

Complete the following if the researcher has any indication that an occupant was either ejected from or entrapped in the vehicle. Code the appropriate data on the Occupant Assessment Form.

**EJECTION** No ☒ Yes ☐

Describe indications of ejection and body parts involved in partial ejection(s):

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Occupant Number						
Ejection						
(Note on Vehicle Interior Sketch) Ejection Area						
Ejection Medium						
Medium Status						

**Ejection**

- (1) Complete ejection  
(2) Partial ejection  
(3) Ejection, Unknown degree  
(9) Unknown

**Ejection Area**

- (1) Windshield  
(2) Left front  
(3) Right front  
(4) Left rear  
(5) Right rear  
(6) Rear

**(7) Roof**

(8) Other area (e.g., back of pickup, etc.) (specify):

(9) Unknown

**Ejection Medium**

- (1) Door/hatch/tailgate  
(2) Nonfixed roof structure  
(3) Fixed glazing  
(4) Nonfixed glazing (specify):

**(5) Integral structure**

(8) Other medium (specify):

(9) Unknown

**Medium Status (Immediately Prior to Impact)**

- (1) Open  
(2) Closed  
(3) Integral structure  
(9) Unknown

**ENTRAPMENT** No ☒ Yes ☐

Describe entrapment mechanism:

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Component(s):

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(Note in vehicle interior diagram)

## CHILD SAFETY SEAT FIELD ASSESSMENT

When a child safety seat is present enter the occupant's number in the first row and complete the column below the occupant's number using the codes listed below. Complete a column for each child safety seat present.

Occupant Number						
1. Type of Child Safety Seat						
2. Child Safety Seat Orientation						
3. Child Safety Seat Harness Usage						
4. Child Safety Seat Shield Usage						
5. Child Safety Seat Tether Usage						
6. Child Safety Seat Make/Model	Specify Below for Each Child Safety Seat					

**1. Type of Child Safety Seat**

- (0) No child safety seat
- (1) Infant seat
- (2) Toddler seat
- (3) Convertible seat
- (4) Booster seat
- (7) Other type child safety seat (specify):

- (8) Unknown child safety seat type
- (9) Unknown if child safety seat used

**2. Child Safety Seat Orientation**

- (00) No child safety seat
- Designed for Rear Facing for This Age/Weight
- (01) Rear facing
- (02) Forward facing
- (08) Other orientation (specify):

- (09) Unknown orientation

Designed for Forward Facing for This Age/Weight

- (11) Rear facing
- (12) Forward facing
- (18) Other orientation (specify):

- (19) Unknown orientation

Unknown Design or Orientation For This Age/Weight, or Unknown Age/Weight

- (21) Rear facing
- (22) Forward facing
- (28) Other orientation (specify):

- (29) Unknown orientation

- (99) Unknown if child safety seat used

**3. Child Safety Seat Harness Usage**

**4. Child Safety Seat Shield Usage**

**5. Child Safety Seat Tether Usage**

Note: Options Below Are Used for Variables 3-5.

- (00) No child safety seat

Not Designed with Harness/Shield/Tether

- (01) After market harness/shield/tether added, not used
- (02) After market harness/shield/tether used
- (03) Child safety seat used, but no after market harness/shield/tether added
- (09) Unknown if harness/shield/tether added or used

Designed With Harness/Shield/Tether

- (11) Harness/shield/tether not used
- (12) Harness/shield/tether used
- (19) Unknown if harness/shield/tether used

Unknown If Designed With Harness/Shield/Tether

- (21) Harness/shield/tether not used
- (22) Harness/shield/tether used
- (29) Unknown if harness/shield/tether used

- (99) Unknown if child safety seat used

**6. Child Safety Seat Make/Model**

(Specify make/model and occupant number)

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**Appendix F:**

**NASS CDS INTERVIEW FORM:**

**CASE VEHICLE DRIVER**



## INTERVIEW FORM (A)

1. Primary Sampling Unit Number <u>10</u>	Interviewee(s) Role or Name(s):
2. Case Number - Stratum <u>9518</u>	<u>DRIVER of CASE vehicle</u>
3. Vehicle Number <u>01</u>	

Review all available information and interview questions prior to conducting interview(s) to ensure the acquisition of all pertinent data.

If the driver was not the person interviewed, was an appointment made for a follow-up interview?

### DRIVER'S DESCRIPTION OF ACCIDENT EVENTS

We were heading East on ~~XXXXXX~~  
going 25-30 mph. As we got into  
the intersection a guy in a big car pulled  
out. He was 15-20' away. I hit the brakes  
and steered to the left. We hit. At impact  
I saw a shadow of my son being whipped  
back into his seat from AIR bag.

After crash I looked at him and his head  
was hanging down. I lifted his head and saw  
he was bleeding and hurt. I picked him up  
out of seat and put him down on grass. I know  
I shouldn't have moved him but I PANICKED.

### OCCUPANT'S DESCRIPTION OF ACCIDENT EVENTS

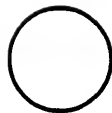
### SPECIFIC QUESTIONS TO ASK INTERVIEWEE

- Did other car stop @ stop sign?

I don't know if he did or not. We had the  
Right-of-way.

My son was half asleep prior to acc. D.

## ACCIDENT DIAGRAM



NORTH

The use of this diagram is optional. It may serve to aid in relating interviewee accident trajectory data (i.e., pre-impact to FRP orientations) to identifiable objects in the environment.

## CRASH DATA INFORMATION

## IF POSSIBLE OBTAIN THIS INFORMATION FROM THE DRIVER:

SOURCE OF INFORMATION:	<input checked="" type="checkbox"/> Driver <input type="checkbox"/> Other occupant <input type="checkbox"/> Relative/friend
In which direction were you traveling?	<input type="checkbox"/> North <input type="checkbox"/> South <input checked="" type="checkbox"/> East <input type="checkbox"/> West (Or where were they coming from or going to?)
What lane were you in?	<input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> Other Note: lane 1 is the right curb lane
What was the condition of the roadway?	<input checked="" type="checkbox"/> Dry <input type="checkbox"/> Wet <input type="checkbox"/> Snow <input type="checkbox"/> Slush <input type="checkbox"/> Ice <input type="checkbox"/> Sand, dirt, oil <input type="checkbox"/> Other (specify): _____
What was the weather like? (Check all that apply)	<input checked="" type="checkbox"/> No adverse conditions <input type="checkbox"/> Rain <input type="checkbox"/> Fog <input type="checkbox"/> Sleet <input type="checkbox"/> Hail <input type="checkbox"/> Snow <input type="checkbox"/> Other (specify): _____
Was there any type of sign or signal present?  (check all that apply)	<input type="checkbox"/> Traffic control signal (includes flashing beacons, lane control signals, and green / amber / red signal) <input type="checkbox"/> Stop sign <input type="checkbox"/> Yield sign <input type="checkbox"/> School zone sign <input type="checkbox"/> Other regulatory sign (No "U" turn, left turn only, wrong way, etc.) specify: _____ <input type="checkbox"/> Warning sign (Winding road sign, stop ahead, intersection signs, etc.) specify: _____ <input type="checkbox"/> Miscellaneous control (including railroad controls) specify: _____ <input type="checkbox"/> None <input checked="" type="checkbox"/> Unknown
If a traffic control device was present, was it functioning properly at the time of the crash?	<input type="checkbox"/> No traffic control device present <input type="checkbox"/> Not functioning properly (includes defaced, badly worn, covered with snow, rotated etc.) specify: _____ <input type="checkbox"/> Functioning properly <input type="checkbox"/> Unknown
Can you estimate your travel speed before the crash? (in mph)	<input type="checkbox"/> Stopped <input type="checkbox"/> 11-20 <input type="checkbox"/> 31-40 <input type="checkbox"/> 51-60 <input type="checkbox"/> 70+ <input type="checkbox"/> 1-10 <input checked="" type="checkbox"/> 21-30 <input type="checkbox"/> 41-50 <input type="checkbox"/> 61-70 <input type="checkbox"/> Unknown
Just before the crash, what were you doing or intending to do? (check all that apply)	<input checked="" type="checkbox"/> Going straight <input type="checkbox"/> Stopped <input type="checkbox"/> Turning left <input type="checkbox"/> Turning right <input type="checkbox"/> Slowing <input type="checkbox"/> Accelerating <input type="checkbox"/> Backing <input type="checkbox"/> Changing lanes to right <input type="checkbox"/> Other (specify): _____ <input type="checkbox"/> Changing lanes to left
Did vehicle lose control due to weather or mechanical problems?	<input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown <input type="checkbox"/> Yes (describe): _____
Did driver take avoidance actions? <input type="checkbox"/> Yes (Check all that apply) → <input type="checkbox"/> No <input type="checkbox"/> Unknown	<input type="checkbox"/> Braking with lock-up <input type="checkbox"/> Accelerating <input type="checkbox"/> Other (specify): _____ <input checked="" type="checkbox"/> Braking without lock-up <input checked="" type="checkbox"/> Steering left <input type="checkbox"/> Releasing brakes <input type="checkbox"/> Steering right
Where was vehicle at time of collision?	<input type="checkbox"/> Original travel lane <input type="checkbox"/> Different travel lane <input checked="" type="checkbox"/> In intersection <input type="checkbox"/> Off roadway to right <input type="checkbox"/> Off roadway to left <input type="checkbox"/> Other (specify): _____
Can you estimate your travel speed at the time of collision? (in mph)	<input type="checkbox"/> Stopped <input type="checkbox"/> 11-20 <input type="checkbox"/> 31-40 <input type="checkbox"/> 51-60 <input type="checkbox"/> 70+ <input type="checkbox"/> 1-10 <input checked="" type="checkbox"/> 21-30 <input type="checkbox"/> 41-50 <input type="checkbox"/> 61-70 <input type="checkbox"/> Unknown
Describe all the impacts to the vehicle, including what the vehicle contacted) and how this vehicle moved to its stopped position, after the collision?	
What race does the driver consider himself?	<input checked="" type="checkbox"/> White <input type="checkbox"/> American Indian, Eskimo or Aleut, Asian or Pacific Islander <input type="checkbox"/> Black <input type="checkbox"/> Other (specify): _____ <input type="checkbox"/> Unknown
Is the driver of Hispanic origin?	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> Unknown

## National Accident Sampling System-Crashworthiness Data System: Interview Form

## VEHICLE INFORMATION

## ROLLOVER DATA

## DID THIS VEHICLE ROLL OVER DURING THE CRASH?

- ☐ YES - - ASK THE FOLLOWING QUESTIONS  
☒ NO - - SKIP TO "FIRE DATA" BELOW  
☐ UNKNOWN - - SKIP TO "FIRE DATA" BELOW

Describe where the rollover began	<input type="checkbox"/> On roadway <input type="checkbox"/> On shoulder <input type="checkbox"/> On roadside or median <input type="checkbox"/> Unknown
What caused the vehicle to roll over?	<input type="checkbox"/> Other vehicle (specify vehicle number) _____ <input type="checkbox"/> Contact to object (specify): _____ <input type="checkbox"/> Other cause (specify): _____ <input type="checkbox"/> Unknown
Which direction did the vehicle roll?	<input type="checkbox"/> Toward the right (passenger side) <input type="checkbox"/> Toward the left (driver side) <input type="checkbox"/> End-over-end <input type="checkbox"/> Unknown
Estimate the number of quarter turns (each side) or complete turns (4 quarter turns) the vehicle did	_____ Number of quarter turns <input type="checkbox"/> Unknown _____ Number of complete turns
When the vehicle stopped rolling over, which side was in contact with the ground?	<input type="checkbox"/> Left side <input type="checkbox"/> Top <input type="checkbox"/> Right side <input type="checkbox"/> Wheels <input type="checkbox"/> Unknown

## FIRE DATA

## DID THIS VEHICLE EXPERIENCE A FIRE?

- ☐ YES - - ASK THE FOLLOWING QUESTIONS  
☒ NO - - SKIP THIS SECTION  
☐ UNKNOWN - - SKIP THIS SECTION

Describe where the fire started, or where the smoke was first seen	<input type="checkbox"/> Under the hood <input type="checkbox"/> In the trunk/cargo area <input type="checkbox"/> Behind the instrument panel <input type="checkbox"/> Under the vehicle <input type="checkbox"/> In the passenger compartment <input type="checkbox"/> From other involved vehicle <input type="checkbox"/> Unknown
Did the fire start with the electrical system?	<input type="checkbox"/> No <input type="checkbox"/> Yes (specify): _____ <input type="checkbox"/> Unknown
Did the fire start with the fuel system?	<input type="checkbox"/> No <input type="checkbox"/> Yes (specify): _____ <input type="checkbox"/> Unknown
<b>ASK IF THE FIRE INVOLVED THE FUEL SYSTEM</b> Which part of the fuel system may have been involved?	<input type="checkbox"/> Fuel tank <input type="checkbox"/> Fuel lines <input type="checkbox"/> Engine compartment (specify component if known) <input type="checkbox"/> Unknown

Describe any additional rollover or fire information here:

### ADDITIONAL VEHICLE INFORMATION

<p>IF THIS VEHICLE HAS NOT BEEN INSPECTED ASK THIS QUESTION:</p> <p>What is the year, make and model of your vehicle?</p>	<p>Year: 19 <u>95</u></p> <p>Make: <u>JAGUAR</u></p> <p>Model: <u>XJS-CONV.</u></p>
<p>Was there any damage to the vehicle that is not related to this crash?</p>	<p><input checked="" type="checkbox"/> No</p> <p><input type="checkbox"/> Yes - describe:</p> <p><input type="checkbox"/> Unknown</p>
<p>Did any of the doors or hatch come open during the crash?</p>	<p><input checked="" type="checkbox"/> No</p> <p><input type="checkbox"/> Yes - describe:</p> <p><input type="checkbox"/> Unknown</p>
<p>Did any of the windows break during the crash?</p>	<p><input checked="" type="checkbox"/> No</p> <p><input type="checkbox"/> Yes - describe:</p> <p><input type="checkbox"/> Unknown</p>
<p>Were any windows open (O) or partially open (P) prior to the crash?</p>	<p><input checked="" type="checkbox"/> No</p> <p><input type="checkbox"/> Yes*      * "O" = open    "P" = partially open</p> <p style="text-align: center;"> <input type="checkbox"/> WS    <input type="checkbox"/> LF    <input type="checkbox"/> RF    <input type="checkbox"/> LR    <input type="checkbox"/> RR  <input type="checkbox"/> BL    <input type="checkbox"/> Roof    <input type="checkbox"/> Other </p> <p><input type="checkbox"/> Unknown</p>
<p>Did the glove compartment door come open during the crash?</p>	<p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes - describe:</p> <p><input checked="" type="checkbox"/> Unknown</p>
<p>Was there any cargo in the vehicle at the time of the crash?</p>	<p><input checked="" type="checkbox"/> No</p> <p><input type="checkbox"/> Yes - describe: <u>Just booster seat &amp; my purse</u></p> <p>Approximate weight - _____ pounds</p> <p><input type="checkbox"/> Unknown</p>
<p>Approximate mileage on the vehicle?</p>	<p>_____ miles</p> <p><input checked="" type="checkbox"/> Unknown</p>
<p>If you have not inspected the vehicle, or permission is needed, ask if you may look at their vehicle to assess the damage and record the following:</p>	<p>Current location of the vehicle:</p> <p>Contact person:</p>
<p>Detail any notes, questions to ask interviewee (i.e., rescue personnel damage to vehicle) or directions to vehicle location here:</p>	



SPECIAL CRASH INVESTIGATION ADDENDUM: DRIVER INFORMATION	
Do you recall the type of development in the area of the crash?	<input checked="" type="checkbox"/> Residential      [ ] Commercial [ ] Industrial      [ ] Agricultural [ ] Undeveloped      [ ] School [ ] Other: _____
What were the weather conditions at the time of the crash?	<input checked="" type="checkbox"/> Clear (no clouds, no precipitation) [ ] Cloudy (partially cloudy, no precipitation) [ ] Overcast (full cloud cover, no precipitation) [ ] Precipitating      [ ] Unknown
What was the type of precipitation?	<input checked="" type="checkbox"/> No precipitation      [ ] Unknown [ ] Raining      [ ] Freezing rain [ ] Sleet      [ ] Snowing [ ] Hailing
What was the condition of the road surface?	<input checked="" type="checkbox"/> Dry      [ ] Wet [ ] Snowy, slushy      [ ] Icy [ ] Other (e.g., sand, dirt, oil on surface, etc.) [ ] Unknown
How would you describe the amount of traffic at the time of the crash?	[ ] Heavy <input checked="" type="checkbox"/> Moderate [ ] Light      [ ] No other traffic present
What is your occupation?	[ ] Professional      [ ] Technical [ ] Government official [ ] Management      [ ] Proprietors [ ] Sales      [ ] Clerical [ ] Craftsman and foreman [ ] Service worker      [ ] Student [ ] Farmers and farm-managers [ ] Farm labors and foreman [ ] Private household worker <input checked="" type="checkbox"/> Housewife      [ ] Other: _____
How long have you driven this vehicle?	Years: _____ Months: _____ <i>only driven 5-6 times</i>
How many miles do you think that you have driven it in the last 12-month period?	Miles: <u>unk</u>
How often do you drive this particular roadway?	<input checked="" type="checkbox"/> Daily      [ ] Twice weekly [ ] Once weekly      [ ] Twice monthly [ ] Once monthly      [ ] Very infrequently [ ] First time on road
Where were you coming from just prior to the crash?	<input checked="" type="checkbox"/> Home      [ ] Work [ ] School      [ ] Shopping [ ] Social/recreational      [ ] Restaurant [ ] Personal business      [ ] Other: _____
Where were you intending to go when the crash occurred?	[ ] Home      [ ] Work [ ] School      [ ] Shopping [ ] Social/recreational      [ ] Restaurant [ ] Personal business      [ ] Other: <u>Driving Around waiting</u> <u>for my daughters school to end.</u>

OCCUPANT DATA QUESTIONS			
How many people were in your vehicle at the time of the crash?			
	DRIVER	OCCUPANT # <u>2</u>	OCCUPANT # <u>   </u>
Where was this person sitting in the vehicle?  Front Left (FL)              Second Left (2L) Front Middle (FM)          Second Middle (2M) Front Right (FR)           Second Right (2R)  Third Left (3L)              Other (SPECIFY in block) Third Middle (3M) Third Right (3R)	FRONT LEFT	FR	
What is the Sex, Height, Weight, and Age of each occupant?	<input type="checkbox"/> M <input type="checkbox"/> F - Not pregnant <input type="checkbox"/> F - Pregnant - # of months <u>   </u> <input type="checkbox"/> F - Unk. if pregnant  HEIGHT: <u>5'7"</u> WEIGHT: <u>140</u> AGE: <u>38</u>	<input type="checkbox"/> M <input type="checkbox"/> F - Not pregnant <input type="checkbox"/> F - Pregnant - # of months <u>   </u> <input type="checkbox"/> F - Unk. if pregnant  HEIGHT: <u>41"</u> WEIGHT: <u>35-40</u> AGE: <u>3</u>	<input type="checkbox"/> M <input type="checkbox"/> F - Not pregnant <input type="checkbox"/> F - Pregnant - # of months <u>   </u> <input type="checkbox"/> F - Unk. if pregnant  HEIGHT: <u>   </u> WEIGHT: <u>   </u> AGE: <u>   </u>
Describe how occupant was seated  A) Kneeling or standing on seat B) Lying on or across seat C) Kneeling, standing or sitting in front of seat D) Sitting sideways, turned to side or back E) Sitting on console F) Lying back in reclined position G) Other (specify) H) Unknown	<input type="checkbox"/> Leaning to left <input type="checkbox"/> Leaning to right <input checked="" type="checkbox"/> Sitting upright <input type="checkbox"/> Unknown  Indicate all letters that apply and describe if other than above	<input type="checkbox"/> Leaning to left <input type="checkbox"/> Leaning to right <input type="checkbox"/> Sitting upright <input checked="" type="checkbox"/> Unknown  Indicate all letters that apply and describe if other than above  <u>1/2 Asleep</u>	<input type="checkbox"/> Leaning to left <input type="checkbox"/> Leaning to right <input type="checkbox"/> Sitting upright <input type="checkbox"/> Unknown  Indicate all letters that apply and describe if other than above
Describe feet and hands/arms location just prior to impact (indicate all that apply)  <u>FEET</u> A) On floor or foot controls B) One or both on dash C) One or both on seat D) Other (specify) E) Unknown  <u>HANDS / ARMS</u> F) Both hands on steering wheel G) One on wheel, other hand resting or adjusting a control (specify hand on wheel and control involved) H) Dialing a cellular phone (specify location and type of phone) I) Holding a cellular phone (specify location and type of phone) J) Bracing with one or both hands K) On lap L) One or both out of window (specify) M) Other (specify) N) Unknown	Indicate all letters that apply and further describe as needed  <u>(A)</u>  <u>(F)</u>	Indicate all letters that apply and further describe as needed  <u>Hanging over booster</u>  <u>(K)</u>	Indicate all letters that apply and further describe as needed
Describe any additional information here:			

OCCUPANT DATA CONTINUED ON NEXT PAGE

## OCCUPANT DATA QUESTIONS (continued)

	DRIVER	OCCUPANT # <u>2</u>	OCCUPANT # <u>   </u>
Was your / their back up against the seat back?	<input type="checkbox"/> No (describe) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> Unknown	<input type="checkbox"/> No (describe) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> Unknown	<input type="checkbox"/> No (describe) <input type="checkbox"/> Yes <input type="checkbox"/> Unknown
Does this seat position have an adjustable seat track, if so where was the seat located prior to impact?	<input type="checkbox"/> Not adjustable <input type="checkbox"/> Seat all the way forward <input type="checkbox"/> Between forward and middle <input type="checkbox"/> At middle position <input checked="" type="checkbox"/> Between middle and rear position <input type="checkbox"/> Seat all the way rearward <input type="checkbox"/> Unknown	<input type="checkbox"/> Not adjustable <input type="checkbox"/> Seat all the way forward <input type="checkbox"/> Between forward and middle <input type="checkbox"/> At middle position <input checked="" type="checkbox"/> Between middle and rear position <input type="checkbox"/> Seat all the way rearward <input type="checkbox"/> Unknown	<input type="checkbox"/> Not adjustable <input type="checkbox"/> Seat all the way forward <input type="checkbox"/> Between forward and middle <input type="checkbox"/> At middle position <input type="checkbox"/> Between middle and rear position <input type="checkbox"/> Seat all the way rearward <input type="checkbox"/> Unknown
Does this seat position have an adjustable seat back, if so where was the seat back located prior to impact?	<input type="checkbox"/> Not adjustable <input type="checkbox"/> Completely upright <input checked="" type="checkbox"/> Slightly reclined <input type="checkbox"/> Completely reclined	<input type="checkbox"/> Not adjustable <input type="checkbox"/> Completely upright <input checked="" type="checkbox"/> Slightly reclined <input type="checkbox"/> Completely reclined	<input type="checkbox"/> Not adjustable <input type="checkbox"/> Completely upright <input type="checkbox"/> Slightly reclined <input type="checkbox"/> Completely reclined
If this seat position has an adjustable seat back, where was the seat back located after impact?	<input type="checkbox"/> Not adjustable <input checked="" type="checkbox"/> Did not move (retained original position) <input type="checkbox"/> Completely reclined <input type="checkbox"/> Slightly reclined <input type="checkbox"/> Completely upright <input type="checkbox"/> Slightly forward of upright <input type="checkbox"/> Completely forward <input type="checkbox"/> Unknown	<input type="checkbox"/> Not adjustable <input checked="" type="checkbox"/> Did not move (retained original position) <input type="checkbox"/> Completely reclined <input type="checkbox"/> Slightly reclined <input type="checkbox"/> Completely upright <input type="checkbox"/> Slightly forward of upright <input type="checkbox"/> Completely forward <input type="checkbox"/> Unknown	<input type="checkbox"/> Not adjustable <input type="checkbox"/> Did not move (retained original position) <input type="checkbox"/> Completely reclined <input type="checkbox"/> Slightly reclined <input type="checkbox"/> Completely upright <input type="checkbox"/> Slightly forward of upright <input type="checkbox"/> Completely forward <input type="checkbox"/> Unknown

Did this vehicle have a cellular phone in it during the crash?

☒ No☐ Yes - describe type: \_\_\_\_\_

(e.g., portable, mounted in vehicle, flip phone, etc.)

☐ Unknown*(Note to researcher: try to determine any driver distractions without implying fault)*

Was the driver doing any of the following? (check all that apply - and specify)

- ☐ Talking to or listening to another occupant (specify):  
☐ Was there a moving object in vehicle (specify):  
☐ Talking or listening on a cellular phone (specify):  
☐ Dialing a cellular phone (specify):  
☐ Adjusting climate control (specify):  
☐ Adjusting radio, CD or cassette player (specify):  
☐ Using other device or object in vehicle (specify):  
☐ Sleep, / asleep (specify):  
☐ Distracted by outside person, object, or event (specify):  
☐ Eating or drinking (specify):  
☐ Smoking related (specify):  
☐ Other (specify):  
☐ Unknown

Describe any additional information here:

## RESTRAINT INFORMATION

	DRIVER	OCCUPANT # <u>2</u>	OCCUPANT # <u>   </u>
Describe the seat belt available for the seat position  NOTE: If a belt is not available for a seat position – describe if removed or not functional.	<input type="checkbox"/> Unknown <input type="checkbox"/> Lap belt <input type="checkbox"/> Shoulder belt <input checked="" type="checkbox"/> Lap & Shoulder <input type="checkbox"/> Not available * * Describe:	<input type="checkbox"/> Unknown <input type="checkbox"/> Lap belt <input type="checkbox"/> Shoulder belt <input checked="" type="checkbox"/> Lap & Shoulder <input type="checkbox"/> Not available * * Describe:	<input type="checkbox"/> Unknown <input type="checkbox"/> Lap belt <input type="checkbox"/> Shoulder belt <input type="checkbox"/> Lap & Shoulder <input type="checkbox"/> Not available * * Describe:
Were the seat belts in the vehicle?	<input type="checkbox"/> Unknown <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes *  * If "Yes", were they working properly?  <input type="checkbox"/> Yes <input type="checkbox"/> No (describe):	<input type="checkbox"/> Unknown <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes *  * If "Yes", were they working properly?  <input type="checkbox"/> Yes <input type="checkbox"/> No (describe):	<input type="checkbox"/> Unknown <input type="checkbox"/> No <input type="checkbox"/> Yes *  * If "Yes", were they working properly?  <input type="checkbox"/> Yes <input type="checkbox"/> No (describe):
Do any of the belts attach to the door so that when the door is opened the belt travels with the door?	<input type="checkbox"/> Unknown <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes *  * If "Yes", does it cross: <input type="checkbox"/> Chest <input type="checkbox"/> Lap <input type="checkbox"/> Both	<input type="checkbox"/> Unknown <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes *  * If "Yes", does it cross: <input type="checkbox"/> Chest <input type="checkbox"/> Lap <input type="checkbox"/> Both	<input type="checkbox"/> Unknown <input type="checkbox"/> No <input type="checkbox"/> Yes *  * If "Yes", does it cross: <input type="checkbox"/> Chest <input type="checkbox"/> Lap <input type="checkbox"/> Both
Were you [and other occupant(s)] wearing a seat belt during the accident?	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> Unknown	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> Unknown	<input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> Unknown

## SKIP THE FOLLOWING IF NO SEAT BELT WAS WORN

What type of belt were you and other occupant(s) wearing?			
How was the lap belt situated?			
How was the shoulder belt situated?			

Describe any breaks, tears, or failures to any of the seat belts:

## EJECTION, ENTRAPMENT, MOBILITY INFORMATION

	DRIVER	OCCUPANT # <u>2</u>	OCCUPANT # <u>   </u>
Was any part of your body thrown outside the vehicle during the crash?	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes * <input type="checkbox"/> Unknown * If "Yes" - what part(s) were ejected, and what area of the vehicle was involved.	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes * <input type="checkbox"/> Unknown * If "Yes" - what part(s) were ejected, and what area of the vehicle was involved.	<input type="checkbox"/> No <input type="checkbox"/> Yes * <input type="checkbox"/> Unknown * If "Yes" - what part(s) were ejected, and what area of the vehicle was involved.
Was anyone pinned in the vehicle?	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes ___ physically pinned ___ jammed doors ___ fire, etc. <input type="checkbox"/> Unknown Detail any entrapment	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes ___ physically pinned ___ jammed doors ___ fire, etc. <input type="checkbox"/> Unknown Detail any entrapment	<input type="checkbox"/> No <input type="checkbox"/> Yes ___ physically pinned ___ jammed doors ___ fire, etc. <input type="checkbox"/> Unknown Detail any entrapment
How did you [and other occupant(s)] exit the vehicle?	<input type="checkbox"/> Fatal before removed <input type="checkbox"/> Removed while unconscious or disoriented <input type="checkbox"/> Removed due to injuries <input type="checkbox"/> Exited with some assistance <input checked="" type="checkbox"/> Exited under own power <input type="checkbox"/> Fully ejected <input type="checkbox"/> Unknown	<input type="checkbox"/> Fatal before removed <input checked="" type="checkbox"/> Removed while unconscious or disoriented <input type="checkbox"/> Removed due to injuries <input type="checkbox"/> Exited with some assistance <input type="checkbox"/> Exited under own power <input type="checkbox"/> Fully ejected <input type="checkbox"/> Unknown	<input type="checkbox"/> Fatal before removed <input type="checkbox"/> Removed while unconscious or disoriented <input type="checkbox"/> Removed due to injuries <input type="checkbox"/> Exited with some assistance <input type="checkbox"/> Exited under own power <input type="checkbox"/> Fully ejected <input type="checkbox"/> Unknown

Further describe any ejection, entrapment, or mobility information here:

## AIR BAG INFORMATION

WAS THIS VEHICLE EVER EQUIPPED WITH AN AIR BAG?

☒ YES (IF "YES" COMPLETE THIS SECTION)☐ NO ☐ UNKNOWN (IF "NO" OR "UNKNOWN" SKIP THIS SECTION)

	DRIVER SIDE FRONTAL	PASSENGER SIDE FRONTAL OCCUPANT # <u>2</u>	"OTHER" AIR BAG SPECIFY: _____ OCCUPANT # _____
Had this vehicle been in any previous crashes?  <input checked="" type="checkbox"/> NO <input type="checkbox"/> YES - continue to right <input type="checkbox"/> UNKNOWN - go to box below	<input type="checkbox"/> Prior crash <u>without</u> deployment <input type="checkbox"/> One prior crash <u>with</u> deployment <input type="checkbox"/> > 1, <u>with</u> at least one deployment <input type="checkbox"/> Previous accident(s) unknown if deployed  IF PRIOR DEPLOYMENT <input type="checkbox"/> CHECK IF NOT REINSTALLED	<input type="checkbox"/> Prior crash <u>without</u> deployment <input type="checkbox"/> One prior crash <u>with</u> deployment <input type="checkbox"/> > 1, <u>with</u> at least one deployment <input type="checkbox"/> Previous accident(s) unknown if deployed  IF PRIOR DEPLOYMENT <input type="checkbox"/> CHECK IF NOT REINSTALLED	<input type="checkbox"/> Prior crash <u>without</u> deployment <input type="checkbox"/> One prior crash <u>with</u> deployment <input type="checkbox"/> > 1, <u>with</u> at least one deployment <input type="checkbox"/> Previous accident(s) unknown if deployed  IF PRIOR DEPLOYMENT <input type="checkbox"/> CHECK IF NOT REINSTALLED
Type of air bag?	<input checked="" type="checkbox"/> Original equipment <input type="checkbox"/> Retrofitted <input type="checkbox"/> Replacement <input type="checkbox"/> Unknown	<input checked="" type="checkbox"/> Original equipment <input type="checkbox"/> Retrofitted <input type="checkbox"/> Replacement <input type="checkbox"/> Unknown	<input type="checkbox"/> Original equipment <input type="checkbox"/> Retrofitted <input type="checkbox"/> Replacement <input type="checkbox"/> Unknown
Had any prior maintenance / service been performed on the air bag system?	<input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown <input type="checkbox"/> Yes - Specify:	<input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown <input type="checkbox"/> Yes - Specify:	<input type="checkbox"/> No <input type="checkbox"/> Unknown <input type="checkbox"/> Yes - Specify:
Did the air bag inflate during this crash?	<input type="checkbox"/> Yes <input type="checkbox"/> Unknown <input checked="" type="checkbox"/> No  If "NO" was the wiring disconnected prior to the crash?  <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unk	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> Unknown <input type="checkbox"/> No  If "NO" was the wiring disconnected prior to the crash?  <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unk	<input type="checkbox"/> Yes <input type="checkbox"/> Unknown <input type="checkbox"/> No  If "NO" was the wiring disconnected prior to the crash?  <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unk
Was the person in this position wearing any type of eye-wear? (Eyeglasses, sunglasses, contact lenses)	<input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown <input type="checkbox"/> Yes - Specify:	<input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown <input type="checkbox"/> Yes - Specify:	<input type="checkbox"/> No <input type="checkbox"/> Unknown <input type="checkbox"/> Yes - Specify:
Was the air bag in this position contacted by another occupant?	<input type="checkbox"/> No <input type="checkbox"/> Unknown <input type="checkbox"/> Yes - Specify:  N/A	<input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown <input type="checkbox"/> Yes - Specify:	<input type="checkbox"/> No <input type="checkbox"/> Unknown <input type="checkbox"/> Yes - Specify:

Describe any additional information here:

## CHILD SAFETY SEAT INFORMATION

WAS THERE A PERSON IN A CHILD SAFETY SEAT IN THIS VEHICLE?

☒ YES (IF "YES" COMPLETE THIS SECTION)☐ NO ☐ UNKNOWN (IF "NO" OR "UNKNOWN" SKIP THIS SECTION)

	DRIVER	OCCUPANT # <u>2</u>	OCCUPANT # <u>   </u>
Manufacturer and model of the safety seat?		century Breverra	
Type of safety seat?		<input type="checkbox"/> Infant <input type="checkbox"/> Toddler <input type="checkbox"/> Convertible <input checked="" type="checkbox"/> Booster <input type="checkbox"/> Integral <input type="checkbox"/> Other Specify: _____ <input type="checkbox"/> Unknown	<input type="checkbox"/> Infant <input type="checkbox"/> Toddler <input type="checkbox"/> Convertible <input type="checkbox"/> Booster <input type="checkbox"/> Integral <input type="checkbox"/> Other Specify: _____ <input type="checkbox"/> Unknown
What direction was it facing prior to the crash?		<input checked="" type="checkbox"/> Front <input type="checkbox"/> Rearward <input type="checkbox"/> Unknown	<input type="checkbox"/> Front <input type="checkbox"/> Rearward <input type="checkbox"/> Unknown
Was a seat belt used to hold the seat in place?		<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> Unknown	<input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> Unknown
How was the seat belt secured to the child seat?		<input type="checkbox"/> Looped through designated rear framing studs <input type="checkbox"/> Looped through arm rest slots <input type="checkbox"/> Belt across safety shield <input type="checkbox"/> Looped through rear frame outside the designated framing struts <input type="checkbox"/> Other (specify): <u>looped</u> <input type="checkbox"/> Unknown <u>across child</u>	<input type="checkbox"/> Looped through designated rear framing studs <input type="checkbox"/> Looped through arm rest slots <input type="checkbox"/> Belt across safety shield <input type="checkbox"/> Looped through rear frame outside the designated framing struts <input type="checkbox"/> Other (specify): _____ <input type="checkbox"/> Unknown
What was the safety seat equipped with at time of purchase?		<input checked="" type="checkbox"/> Harness <input type="checkbox"/> Shield <input checked="" type="checkbox"/> Tether <input type="checkbox"/> Unknown	<input type="checkbox"/> Harness <input type="checkbox"/> Shield <input type="checkbox"/> Tether <input type="checkbox"/> Unknown
Were any of these added after they owned the safety seat?		<input type="checkbox"/> Harness <input type="checkbox"/> Shield <input type="checkbox"/> Tether <input checked="" type="checkbox"/> None <input type="checkbox"/> Unknown	<input type="checkbox"/> Harness <input type="checkbox"/> Shield <input type="checkbox"/> Tether <input type="checkbox"/> None <input type="checkbox"/> Unknown

Describe any additional information here:

INJURY INFORMATION			
	DRIVER	OCCUPANT # <u>2</u>	OCCUPANT # <u>    </u>
Were you (or any other occupants) injured? > If "YES" go to manikin page and record injuries in detail > If "NO" ask next questions	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> Unknown	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> Unknown	<input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> Unknown
Did you (or any other occupants) receive any of the following: (If any injuries are checked, go to the manikin page and record location, lesion, and source)	<input type="checkbox"/> Cuts <input type="checkbox"/> Abrasions <input type="checkbox"/> Bruises <input type="checkbox"/> Broken bones <input type="checkbox"/> Head, skull, brain <input type="checkbox"/> Internal injury <input type="checkbox"/> Sprains, strains <input type="checkbox"/> Other (specify):	<input type="checkbox"/> Cuts <input checked="" type="checkbox"/> Abrasions <input checked="" type="checkbox"/> Bruises <input type="checkbox"/> Broken bones <input checked="" type="checkbox"/> Head, skull, brain <input type="checkbox"/> Internal injury <input type="checkbox"/> Sprains, strains <input type="checkbox"/> Other (specify): <u>Burns?</u>	<input type="checkbox"/> Cuts <input type="checkbox"/> Abrasions <input type="checkbox"/> Bruises <input type="checkbox"/> Broken bones <input type="checkbox"/> Head, skull, brain <input type="checkbox"/> Internal injury <input type="checkbox"/> Sprains, strains <input type="checkbox"/> Other (specify):
YES CHECKED IN THE MANIKIN PAGE(S)			
Did you (or any other occupants) receive any medical treatment? (check all that apply)	<input type="checkbox"/> Hospital <input type="checkbox"/> Medical clinic <input type="checkbox"/> Paramedics at scene <input type="checkbox"/> Doctor's office <input type="checkbox"/> Treated by self <input type="checkbox"/> Unknown	<input checked="" type="checkbox"/> Hospital <input type="checkbox"/> Medical clinic <input type="checkbox"/> Paramedics at scene <input type="checkbox"/> Doctor's office <input type="checkbox"/> Treated by self <input type="checkbox"/> Unknown	<input type="checkbox"/> Hospital <input type="checkbox"/> Medical clinic <input type="checkbox"/> Paramedics at scene <input type="checkbox"/> Doctor's office <input type="checkbox"/> Treated by self <input type="checkbox"/> Unknown
Were you (or any other occupants) hospitalized?	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes - number of days <input type="checkbox"/> Unknown	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes - number of days <input type="checkbox"/> Unknown	<input type="checkbox"/> No <input type="checkbox"/> Yes - number of days <input type="checkbox"/> Unknown
Were you (or any other occupants) treated and released from the emergency room?	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> Unknown	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> Unknown	<input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> Unknown
Name of medical treatment facility?		<u>Hosp</u>	
Have you (or any other occupants) received any follow-up treatment?	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes - describe: _____ <input type="checkbox"/> Unknown	<input type="checkbox"/> No <input type="checkbox"/> Yes - describe: _____ <input checked="" type="checkbox"/> Unknown <u>at this time</u>	<input type="checkbox"/> No <input type="checkbox"/> Yes - describe: _____ <input type="checkbox"/> Unknown
Have you (or any other occupants) lost any days from work or school (college) due to the crash?	<input checked="" type="checkbox"/> No <input type="checkbox"/> Not working prior to crash <input type="checkbox"/> Yes - number of days <input type="checkbox"/> Unknown	<input checked="" type="checkbox"/> No <input type="checkbox"/> Not working prior to crash <input type="checkbox"/> Yes - number of days <input type="checkbox"/> Unknown	<input type="checkbox"/> No <input type="checkbox"/> Not working prior to crash <input type="checkbox"/> Yes - number of days <input type="checkbox"/> Unknown
IF REQUIRED: Will you sign a medical release? * If not an in-person interview, make appointment to have release signed	<input type="checkbox"/> No <input type="checkbox"/> Yes* <input type="checkbox"/> Unknown DATE: _____ TIME: _____ PLACE: _____	<input type="checkbox"/> No <input type="checkbox"/> Yes* <input type="checkbox"/> Unknown <u>N/A</u> DATE: _____ TIME: _____ PLACE: _____	<input type="checkbox"/> No <input type="checkbox"/> Yes* <input type="checkbox"/> Unknown DATE: _____ TIME: _____ PLACE: _____

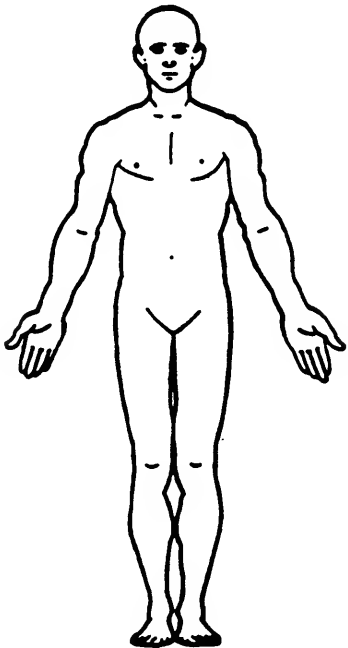
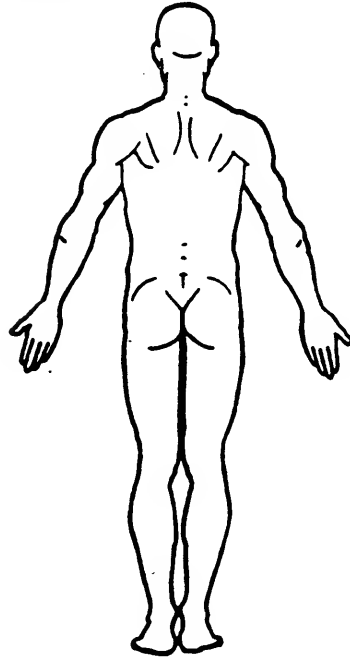


PSU Number 10 Case Number—Stratum 9518 Vehicle Number 01 Occupant Number 01

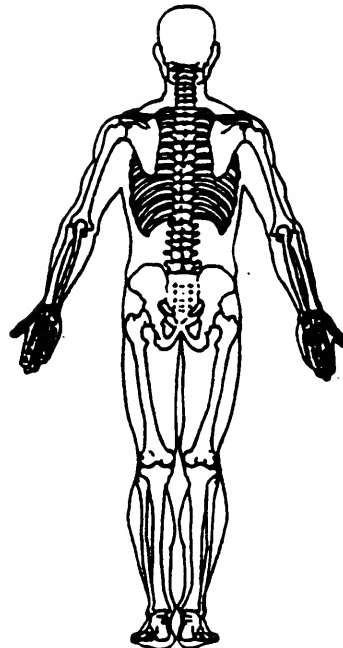
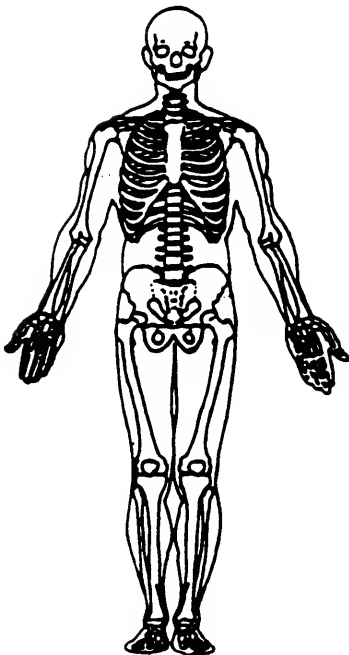
## INJURY DATA FROM INTERVIEWEE(S)

Indicate the *Location, Lesion, Detail, and Source* of all injuries. Specify interviewee(s): Mother

## SOFT TISSUE/INTERNAL INJURIES

nothing

## SKELETAL INJURIES



The space provided on the back of this page may be used to further detail injuries noted by the interviewee(s).

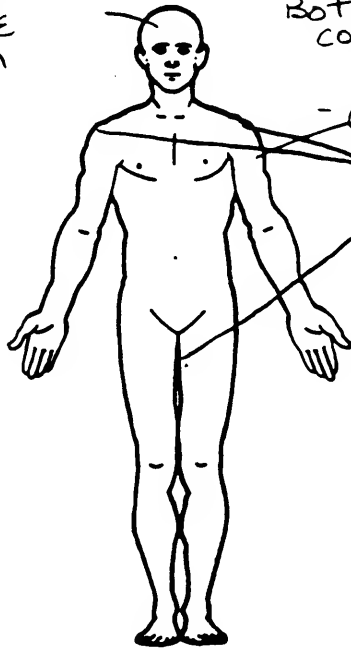
PSU Number 10Case Number—Stratum 9518Vehicle Number 01Occupant Number 02

## INJURY DATA FROM INTERVIEWEE(S)

Indicate the Location, Lesion, Detail, and Source of all injuries. Specify interviewee(s): TRAUMA DR

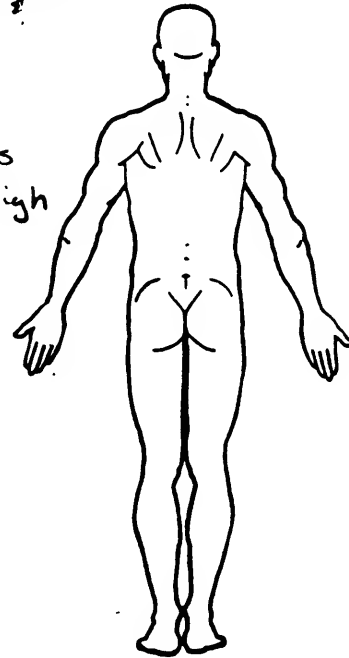
## ABRASIONS:

- (L) forehead
- NOSE
- chin

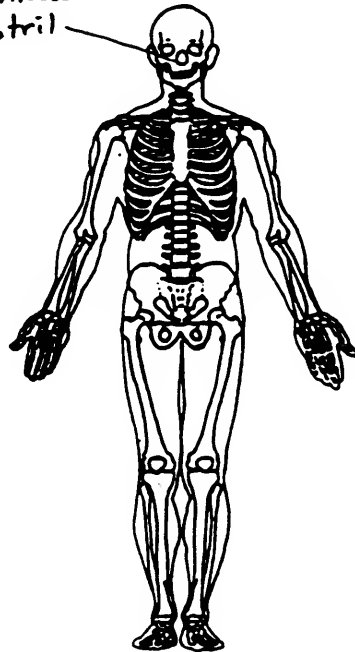
SOFT TISSUE/INTERNAL INJURIES  
Both eyes swollen & contused

## contusions:

- (L) upper arm
- Both shoulders
- (L) Anterior thigh



CSF Rhinorrhea out (L) nostril



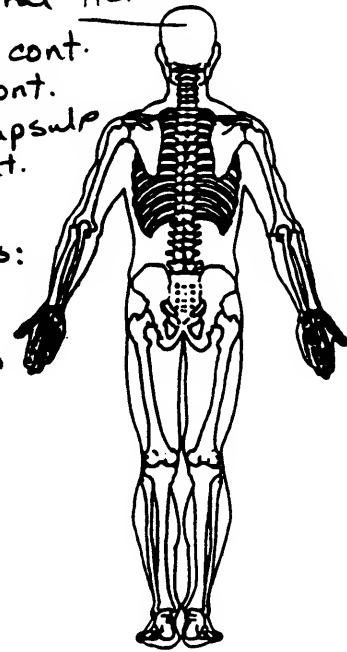
## SKELETAL INJURIES

Small subdural Hematoma

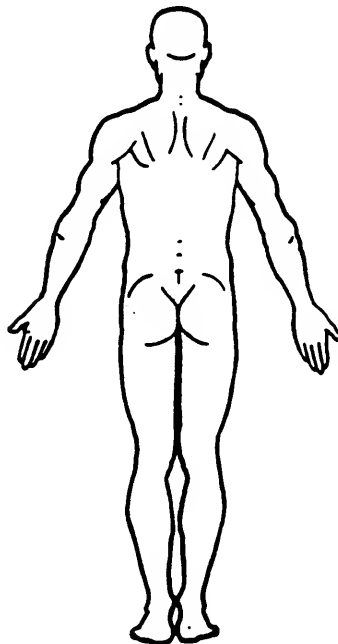
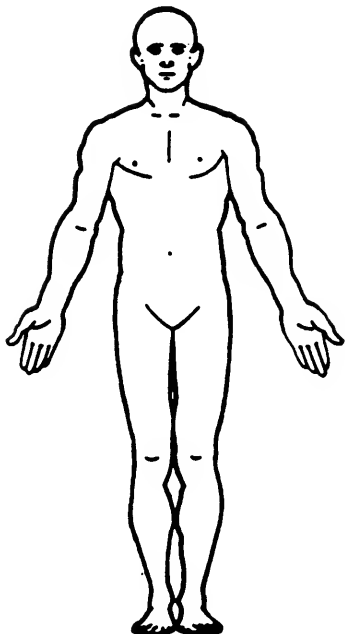
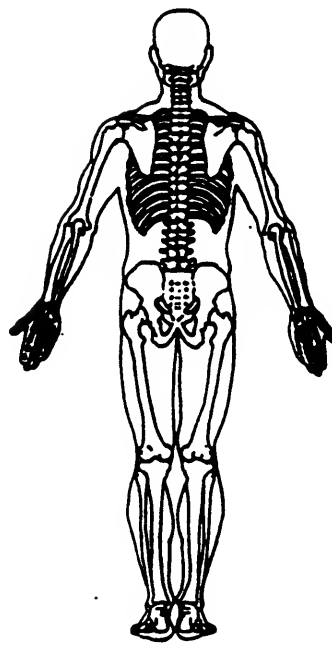
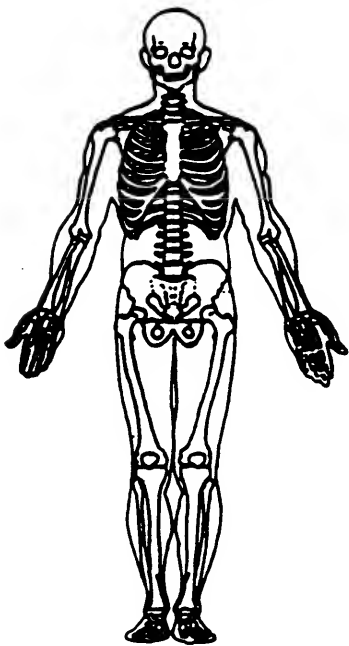
- (R) Temporal cont.
- (R) Frontal cont.
- (R) internal capsule cont.

## Shear injuries:

- (R) Temporal
- (R) Basil Ganglia
- (R) Hemisphere
- BRAIN stem
- (L) Hemisphere



The space provided on the back of this page may be used to further detail injuries noted by the interviewee(s).

PSU Number 10 Case Number—Stratum \_\_\_\_\_ Vehicle Number \_\_\_\_\_ Occupant Number \_\_\_\_\_**INJURY DATA FROM INTERVIEWEE(S)**Indicate the *Location, Lesion, Detail, and Source* of all injuries. Specify interviewee(s): \_\_\_\_\_**SOFT TISSUE/INTERNAL INJURIES****SKELETAL INJURIES**

The space provided on the back of this page may be used to further detail injuries noted by the interviewee(s).

**Appendix G:**

**NASS CDS INTERVIEW FORM:**

**VEHICLE #2 DRIVER**



## INTERVIEW FORM (A)

NATIONAL ACCIDENT SAMPLING SYSTEM  
CRASHWORTHINESS DATA SYSTEM

1. Primary Sampling Unit Number <u>10</u>	Interviewee(s) Role or Name(s): <u>DRIVER of</u>
2. Case Number - Stratum <u>9518</u>	<u>CADILLAC (V2)</u>
3. Vehicle Number <u>02</u>	

Review all available information and interview questions prior to conducting interview(s) to ensure the acquisition of all pertinent data.

If the driver was not the person interviewed, was an appointment made for a follow-up interview?

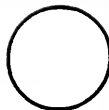
### DRIVER'S DESCRIPTION OF ACCIDENT EVENTS

MR [REDACTED] let me tell you something. I just got out of the Hospital After having some surgery. I don't need to get excited. I will not fill out your questionnaire And I don't want you to call me Anymore! Click

### OCCUPANT'S DESCRIPTION OF ACCIDENT EVENTS

### SPECIFIC QUESTIONS TO ASK INTERVIEWEE

## ACCIDENT DIAGRAM



NORTH

The use of this diagram is optional. It may serve to aid in relating interviewee accident trajectory data (i.e., pre-impact to FRP orientations) to identifiable objects in the environment.

**Appendix H:**

**NASS CDS OCCUPANT ASSESSMENT FORM:**

**CASE VEHICLE DRIVER**



## OCCUPANT ASSESSMENT FORM

1. Primary Sampling Unit Number

10

2. Case Number - Stratum

9518

3. Vehicle Number

01

4. Occupant Number

01

### OCCUPANT'S CHARACTERISTICS

5. Occupant's Age

38

Code actual age at time of accident.

(00) Less than one year old (specify by month):

(97) 97 years and older

(99) Unknown

6. Occupant's Sex

2

(1) Male

(2) Female-not reported pregnant

(3) Female-pregnant-1st trimester(1st-3rd month)

(4) Female-pregnant-2nd trimester(4th-6th month)

(5) Female-pregnant-3rd trimester(7th-9th month)

(6) Female-pregnant-term unknown

(9) Unknown

7. Occupant's Height

170

Code actual height to the nearest  
centimeter.

(999) Unknown

67 inches X 2.54 = \_\_\_\_\_ centimeters

8. Occupant's Weight

064

Code actual weight to the nearest  
kilogram.

(999) Unknown

140 pounds X .4536 = 63.5 kilograms

9. Occupant's Role

1

(1) Driver

(2) Passenger

(9) Unknown

### OCCUPANT'S SEATING

10. Occupant's Seat Position

11

*Front Seat*

(11) Left side

(12) Middle

(13) Right side

(14) Other (specify): \_\_\_\_\_

(15) On or in the lap of another occupant

*Second Seat*

(21) Left side

(22) Middle

(23) Right side

(24) Other (specify): \_\_\_\_\_

(25) On or in the lap of another occupant

*Third Seat*

(31) Left side

(32) Middle

(33) Right side

(34) Other (specify): \_\_\_\_\_

(35) On or in the lap of another occupant

*Fourth Seat*

(41) Left side

(42) Middle

(43) Right side

(44) Other (specify): \_\_\_\_\_

(45) On or in the lap of another occupant

(97) In or on unenclosed area

(98) Other seat (specify): \_\_\_\_\_

(99) Unknown

11. Occupant's Posture

0

(0) Normal posture

*Abnormal posture*

(1) Kneeling or standing on seat

(2) Lying on or across seat

(3) Kneeling, standing or sitting in front of seat

(4) Sitting sideways or turned to talk with another  
occupant or to look out a rear window

(5) Sitting on a console

(6) Lying back in a reclined seat position

(7) Bracing with feet or hands on a surface in front  
of seat

(8) Other abnormal posture (specify): \_\_\_\_\_

(9) Unknown



## EJECTION/ENTRAPMENT

12. Ejection 0

- (0) No ejection
- (1) Complete ejection
- (2) Partial ejection
- (3) Ejection, unknown degree
- (9) Unknown

13. Ejection Area 0

- (0) No ejection
- (1) Windshield
- (2) Left front
- (3) Right front
- (4) Left rear
- (5) Right rear
- (6) Rear
- (7) Roof
- (8) Other area (e.g., back of pickup, etc.)  
(specify): \_\_\_\_\_
- (9) Unknown

14. Ejection Medium 0

- (0) No ejection
- (1) Door/hatch/tailgate
- (2) Nonfixed roof structure
- (3) Fixed glazing
- (4) Nonfixed glazing (specify): \_\_\_\_\_
- (5) Integral structure
- (8) Other medium (specify): \_\_\_\_\_
- (9) Unknown

15. Medium Status (Immediately Prior To Impact) 0

- (0) No ejection
- (1) Open
- (2) Closed
- (3) Integral structure
- (9) Unknown

16. Entrapment 0

- (0) Not entrapped/exit not inhibited
- (1) Entrapped/pinned - mechanically restrained
- (2) Could not exit vehicle due to jammed doors, fire, etc.  
(specify): \_\_\_\_\_
- (9) Unknown

17. Occupant Mobility 4

- (0) Occupant fatal before removed from vehicle
- (1) Removed from vehicle while unconscious or disoriented
- (2) Removed from vehicle due to injuries
- (3) Exited vehicle with some assistance
- (4) Exited vehicle under own power
- (5) Occupant fully ejected
- (9) Unknown

## BELT SYSTEM FUNCTION

18. Manual (Active) Belt System Availability 4

- (0) None available
- (1) Belt removed/destroyed
- (2) Shoulder belt
- (3) Lap belt
- (4) Lap and shoulder belt
- (5) Belt available—type unknown

*Integral Belt Partially Destroyed*

- (6) Shoulder belt (lap belt destroyed/removed)
- (7) Lap belt (shoulder belt destroyed/removed)
- (8) Other belt (specify): \_\_\_\_\_

(9) Unknown

19. Manual (Active) Belt System Use 04

- (00) None used, not available, or belt removed/destroyed
- (01) Inoperative (specify): \_\_\_\_\_

- (02) Shoulder belt
- (03) Lap belt
- (04) Lap and shoulder belt
- (05) Belt used—type unknown
- (08) Other belt used (specify): \_\_\_\_\_

- (12) Shoulder belt used with child safety seat
- (13) Lap belt used with child safety seat
- (14) Lap and shoulder belt used with child safety seat
- (15) Belt used with child safety seat—type unknown
- (18) Other belt used with child safety seat (specify): \_\_\_\_\_
- (99) Unknown if belt used

20. Proper Use of Manual (Active) Belts 9

- (0) None used or not available
- (1) Belt used properly
- (2) Belt used properly with child safety seat

*Belt Used Improperly*

- (3) Shoulder belt worn under arm
- (4) Shoulder belt worn behind back or seat
- (5) Belt worn around more than one person
- (6) Lap belt worn on abdomen
- (7) Lap belt or lap and shoulder belt used improperly with child safety seat (specify): \_\_\_\_\_

(8) Other improper use of manual belt system (specify): \_\_\_\_\_

(9) Unknown

21. Manual (Active) Belt Failure Modes During Accident 1

- (0) No manual belt used or not available
- (1) No manual belt failure(s)
- (2) Torn webbing (stretched webbing not included)
- (3) Broken buckle or latchplate
- (4) Upper anchorage separated
- (5) Other anchorage separated (specify): \_\_\_\_\_

(6) Broken retractor

(7) Combination of above (specify): \_\_\_\_\_

(8) Other manual belt failure (specify): \_\_\_\_\_

(9) Unknown

22. Shoulder Belt Upper Anchorage Adjustment 1

- (0) No shoulder belt
- (1) No upper anchorage adjustment for shoulder belt

*Adjustable shoulder Belt Upper Anchorage*

- (2) In full up position
- (3) In mid position
- (4) In full down position
- (5) Position unknown
- (9) Unknown if position has adjustable upper anchorage adjustment

23. Automatic (Passive) Belt System Availability/Function 0

- (0) Not equipped/not available
- (1) 2 point automatic belts
- (2) 3 point automatic belts
- (3) Automatic belts - type unknown

*Non-functional*

- (4) Automatic belts destroyed or rendered inoperative
- (9) Unknown

24. Automatic (Passive) Belt System Use 0

- (0) Not equipped/not available/destroyed or rendered inoperative
- (1) Automatic belt in use
- (2) Automatic belt not in use (manually disconnected, motorized track inoperative) (specify): \_\_\_\_\_
- (3) Automatic belt use unknown
- (9) Unknown

25. Automatic (Passive) Belt System Type 0

- (0) Not equipped/not available
- (1) Non-motorized system
- (2) Motorized system
- (9) Unknown

26. Proper Use of Automatic (Passive) Belt System 0

- (0) Not equipped/not available/not used
- (1) Automatic belt used properly
- (2) Automatic belt used properly with child safety seat

*Automatic Belt Used Improperly*

- (3) Automatic shoulder belt worn under arm
- (4) Automatic shoulder belt worn behind back
- (5) Automatic belt worn around more than one person
- (6) Lap portion of automatic belt worn on abdomen
- (7) Automatic lap and shoulder belt or automatic shoulder belt used improperly with child safety seat (specify): \_\_\_\_\_

(8) Other improper use of automatic belt system (specify): \_\_\_\_\_

(9) Unknown

27. Automatic (Passive) Belt Failure Modes During Accident 0

- (0) Not equipped/not available/not in use
- (1) No automatic belt failure(s)
- (2) Torn webbing (stretched webbing not included)
- (3) Broken buckle or latchplate
- (4) Upper anchorage separated
- (5) Other anchorage separated (specify): \_\_\_\_\_

(6) Broken retractor

(7) Combination of above (specify): \_\_\_\_\_

(8) Other automatic belt failure (specify): \_\_\_\_\_

(9) Unknown

## POLICE REPORTED RESTRAINT USE

28. Police Reported Belt Use 4

- (0) None used  
 (1) Police did not indicate belt use  
 (2) Shoulder belt  
 (3) Lap belt  
 (4) Lap and shoulder belt  
 (5) Belt used, type not specified  
 (6) Child safety seat  
 (7) Automatic belt  
 (8) Other type belt, (specify):  
 (9) Police indicated "unknown"

29. Police Reported Air Bag Availability/Function 3

- (0) No air bag available  
 (1) Police did not indicate air bag availability/function  
 (2) Deployed  
 (3) Not deployed  
 (4) Unknown if deployed  
 (9) Police indicated "unknown"

Check the Primary Source Used In Determining Belt Use.

- ☐ Not equipped/not available/destroyed or rendered inoperative  
☒ Vehicle inspection  
☐ Official injury data  
☐ Driver/occupant interview  
☐ Other (specify):  
☐ Unknown if belt used

## AIR BAG SYSTEM FUNCTION

30. Frontal Air Bag System Availability/Function (This Occupant Position) 1

- (0) Not equipped/not available  
 (1) Air bag

*Non-functional*

- (2) Air bag disconnected (specify):  
 (3) Air bag not reinstalled  
 (9) Unknown

31. Frontal Air Bag System Deployment (This Occupant Position) 7

- (0) Not equipped/not available  
 (1) Deployed during accident (as a result of impact)  
 (2) Deployed inadvertently just prior to accident  
 (3) Deployed, details unknown  
 (4) Deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)  
 (5) Unknown if deployed  
 (7) Nondeployed  
 (9) Unknown

32. Other Than First Seat Frontal Air Bag Availability/Function (This Occupant Position) 0

- (0) Not equipped/not available  
 (1) Air bag

*Non-functional*

- (2) Air bag disconnected (specify):  
 (3) Air bag not reinstalled  
 (9) Unknown

*Specify type of "other" air bag present:*

33. Air Bag(s) Deployment, Other Than First Seat Frontal (This Occupant Position) 0

- (0) Not equipped with an "other" air bag  
 (1) Deployed during accident (as a result of impact)  
 (2) Deployed inadvertently just prior to accident  
 (3) Deployed, details unknown  
 (4) Deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)  
 (5) Unknown if deployed  
 (7) Nondeployed  
 (9) Unknown

34. Are There Indications of Air Bag System Failure? (This Occupant Position) 1

- (0) Not equipped/not available  
 (1) No  
 (2) Yes (specify):  
 (9) Unknown

## FIRST SEAT FRONTAL AIR BAG SYSTEM EVALUATION

35. Had Vehicle Been in Previous Accident(s)? 1

- (0) Not equipped/not available  
(1) No previous accidents

Yes

- (2) Previous accident(s) without deployment(s)  
(3) One previous accident with deployment  
(4) More than one previous accident with at least one deployment  
(8) Previous accidents, unknown deployment status  
(9) Unknown

36. Type of Air Bag 1

- (0) Not equipped/not available  
(1) Original manufacturer installed system  
(2) Retrofitted air bag  
(3) Replacement air bag  
(8) Unknown type of air bag  
(9) Unknown

37. Had Any Prior Maintenance/Service Been Performed On This Air Bag System? 1

- (0) Not equipped/not available  
(1) No prior maintenance  
(2) Yes, prior maintenance (specify):

(9) Unknown

38. Air Bag Deployment Accident Event Sequence Number 01

- (00) Not equipped/not available  
Code the accident event sequence number that initiated the air bag deployment

- (96) Deployed, unknown event  
(97) Not deployed  
(98) Unknown if deployed  
(99) Unknown

39. CDC For Air Bag Deployment Impact 1

- (0) Not equipped/not available  
(1) Highest delta V  
(2) Second highest delta V  
(3) Other non-coded delta V (specify):

- (6) Deployed, unknown event  
(7) Not deployed  
(8) Unknown if deployed  
(9) Unknown

40. Longitudinal Component of +Delta V For Air Bag Deployment Impact - 997

(\_000) Not equipped/not available

Code the value of the delta V for the impact that initiated the air bag deployment

(\_996) Deployment, unknown longitudinal Delta V

(\_997) Not deployed

(\_998) Unknown if deployed

(\_999) Unknown

41. Did Air Bag Module Cover Flap(s) Open At Designated Tear Points? 7

(0) Not equipped/not available

(1) No

(2) Yes

(3) Deployed, unknown if flap(s) opened at designated tear points

(7) Not deployed

(8) Unknown if deployed

(9) Unknown

42. Were Air Bag Module Cover Flap(s) Damaged? 7

(0) Not equipped/not available

(1) No

(2) Yes (specify):

(3) Deployed, unknown if air bag module cover flap(s) damaged

(7) Not deployed

(8) Unknown if deployed

(9) Unknown

43. Was There Damage To The Air Bag? 97

(00) Not equipped/not available

(01) Not damaged

Yes - Air Bag Damage

(02) Ruptured

(03) Cut

(04) Torn

(05) Holed

(06) Burned

(07) Abraded

(88) Other damage (specify):

(95) Damaged, details unknown

(96) Deployed, unknown if damaged

(97) Not deployed

(98) Unknown if deployed

(99) Unknown

**FIRST SEAT FRONTAL AIR BAG SYSTEM  
EVALUATION** *continued***HEAD RESTRAINT AND SEAT EVALUATION**44. Source of Air Bag Damage 9 7

(00) Not equipped/not available

(01) Not damaged

(02) Object worn by occupant, (specify):

(03) Object carried by occupant, (specify):

(04) Adaptive/assistive controls, (specify):

(05) Fire in vehicle

(06) Thermal burns

(07) Rescue or emergency efforts

(08) Other damage source (specify):

(95) Damaged, unknown source

(96) Deployed, unknown if damaged

(97) Not deployed

(98) Unknown if deployed

(99) Unknown

45. Was The Air Bag Tethered? 7

(0) Not equipped/not available

(1) No

(2) Yes (specify number of tether straps):

(3) Deployed, unknown if tethered

(7) Not deployed

(8) Unknown if deployed

(9) Unknown

46. Did The Air Bag Have Vent Ports? 7

(0) Not equipped/not available

(1) No

(2) Yes (specify number of vent ports):

(3) Deployed, unknown if vent ports present

(7) Not deployed

(8) Unknown if deployed

(9) Unknown

47. Was the Air Bag in this Occupant's Position  
Contacted by Another Occupant? 7

(0) Not equipped/not available

(1) No

(2) Yes (specify):

(3) Deployed, unknown if other occupant contact  
to air bag

(7) Not deployed

(8) Unknown if deployed

(9) Unknown

48. Was This Occupant Wearing Eye-wear? 7

(0) Not equipped/not available

(1) No

(2) Eyeglasses/sunglasses

(3) Contact lenses

(4) Deployed, unknown if eyewear worn

(7) Not deployed

(8) Unknown if deployed

(9) Unknown

49. Head Restraint Type/Damage by Occupant  
at This Occupant Position 3

(0) No head restraints

(1) Integral—no damage

(2) Integral—damaged during accident

(3) Adjustable—no damage

(4) Adjustable—damaged during accident

(5) Add-on—no damage

(6) Add-on—damaged during accident

(8) Other (specify):

(9) Unknown

50. Seat Type (this Occupant Position) 0 2

(00) Occupant not seated or no seat

(01) Bucket

(02) Bucket with folding back

(03) Bench

(04) Bench with separate back cushions

(05) Bench with folding back(s)

(06) Split bench with separate back cushions

(07) Split bench with folding back(s)

(08) Pedestal (i.e., column supported)

(09) Box mounted seat (i.e., van type)

(10) Other seat type (specify):

(99) Unknown

51. Seat Orientation (this Occupant Position) 1

(0) Occupant not seated or no seat

(1) Forward facing seat

(2) Rear facing seat

(3) Side facing seat (inward)

(4) Side facing seat (outward)

(8) Other (specify):

(9) Unknown

52. Seat Track Adjusted Position Prior To Impact 5

(0) Occupant not seated or no seat

(1) Non-adjustable seat track

*Adjustable Seat Track*

(2) Seat at forward most track position

(3) Seat between forward most and middle track  
positions

(4) Seat at middle track position

(5) Seat between middle and rear most track  
positions

(6) Seat at rear most track position

(9) Unknown

**HEAD RESTRAINT AND SEAT EVALUATION** *continued***53. Seat Back Incline Prior and Post Impact** 2 3

- (00) Occupant not seated or no seat  
 (01) Not adjustable

*Upright prior to impact*

- (11) Moved to completely rearward position  
 (12) Moved to rearward midrange position  
 (13) Moved to slightly rearward position  
 (14) Retained pre-impact position  
 (15) Moved to slightly forward position  
 (16) Moved to forward midrange position  
 (17) Moved to completely forward position

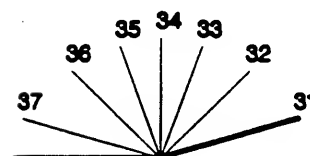
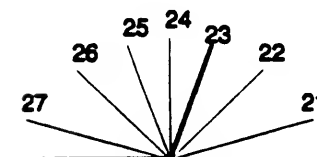
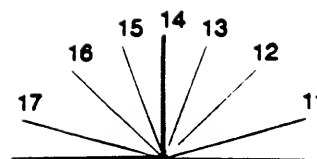
*Slightly reclined prior to impact*

- (21) Moved to completely rearward position  
 (22) Moved to rearward midrange position  
 (23) Retained pre-impact position  
 (24) Moved to upright position  
 (25) Moved to slightly forward position  
 (26) Moved to forward midrange position  
 (27) Moved to completely forward position

*Completely reclined prior to impact*

- (31) Retained pre-impact position  
 (32) Moved to rearward midrange position  
 (33) Moved to slightly rearward position  
 (34) Moved to upright position  
 (35) Moved to slightly forward position  
 (36) Moved to forward midrange position  
 (37) Moved to completely forward position

(99) Unknown

**54. Seat Performance (this Occupant Position)** 1

- (0) Occupant not seated or no seat  
 (1) No seat performance failure(s)  
 (2) Seat adjusters failed  
 (3) Seat back folding locks or "seat back" failed (specify): \_\_\_\_\_  
 (4) Seat track/anchors failed  
 (5) Deformed by impact of occupant  
 (6) Deformed by passenger compartment intrusion, (specify): \_\_\_\_\_  
 (7) Combination of above (specify): \_\_\_\_\_  
 (8) Other (specify): \_\_\_\_\_  
 (9) Unknown

## CHILD SAFETY SEAT

55. Child Safety Seat Make/Model 000

(000) No child safety seat

Applicable codes are found in your NASS CDS  
Data Collection, Coding and Editing

(950) Built-in child safety seat

(997) Other make/model (specify):  
\_\_\_\_\_

(998) Unknown make/model

(999) Unknown if child safety seat used

56. Type of Child Safety Seat 0

(0) No child safety seat

(1) Infant seat

(2) Toddler seat

(3) Convertible seat

(4) Booster seat - with shield

(5) Booster seat - without shield

(7) Other type child safety seat (specify):  
\_\_\_\_\_

(8) Unknown child safety seat type

(9) Unknown if child safety seat used

57. Child Safety Seat Orientation 00

(00) No child safety seat

*Designed for Rear Facing for This Age/Weight*

(01) Rear facing

(02) Forward facing

(08) Other orientation (specify):  
\_\_\_\_\_

(09) Unknown orientation

*Designed For Forward Facing for This Age/Weight*

(11) Rear facing

(12) Forward facing

(18) Other orientation (specify):  
\_\_\_\_\_

(19) Unknown orientation

*Unknown Design or Orientation For This  
Age/Weight, or Unknown Age/Weight*

(21) Rear facing

(22) Forward facing

(28) Other orientation (specify):  
\_\_\_\_\_

(29) Unknown orientation

(99) Unknown if child safety seat used

58. Child Safety Seat Harness Usage 0059. Child Safety Seat Shield Usage 0060. Child Safety Seat Tether Usage 00Note: Options below applicable to  
Variables OA58-OA60.

(00) No child safety seat

*Not Designed With Harness/Shield/Tether*(01) After market harness/shield/tether  
added, not used

(02) After market harness/shield/tether used

(03) Child safety seat used, but no after market  
harness/shield/tether added(09) Unknown if harness/shield/tether  
added or used*Designed With Harness/Shield/Tether*

(11) Harness/shield/tether not used

(12) Harness/shield/tether used

(19) Unknown if harness/shield/tether used

*Unknown If Designed With Harness/Shield/Tether*

(21) Harness/shield/tether not used

(22) Harness/shield/tether used

(29) Unknown if harness/shield/tether used

(99) Unknown if child safety seat used

**INJURY CONSEQUENCES****61. Injury Severity (Police Rating)** 0

- (0) O - No injury
- (1) C - Possible injury
- (2) B - Nonincapacitating injury
- (3) A - Incapacitating injury
- (4) K - Killed
- (5) U - Injury, severity unknown
- (6) Died prior to accident
- (9) Unknown

**62. Treatment - Mortality** 0

- (0) No treatment
- (1) Fatal
- (2) Fatal - ruled disease (specify):  
\_\_\_\_\_

*Nonfatal*

- (3) Hospitalization
- (4) Transported and released
- (5) Treatment at scene - nontransported
- (6) Treatment later
- (7) Treatment - other (specify):  
\_\_\_\_\_
- (8) Transported to a medical facility-unknown if treated
- (9) Unknown

**63. Type Of Medical Facility (for Initial Treatment)** 0

- (0) Not treated at a medical facility
- (1) Trauma center
- (2) Hospital
- (3) Medical clinic
- (4) Physician's office
- (5) Treatment later at medical facility
- (8) Other (specify):  
\_\_\_\_\_

(9) Unknown

**64. Hospital Stay** 00

- (00) Not Hospitalized
- \_\_\_\_\_ Code the number of days (up through 60) that the occupant stayed in hospital.
- (61) 61 days or more
- (99) Unknown

**65. Working Days Lost** 97

- \_\_\_\_\_ Code the number of days (up through 60) that the occupant lost from work due to the accident
- (00) No working days lost
- (61) 61 days or more
- (62) Fatally injured
- (97) Not working prior to accident
- (99) Unknown

**STOP WORK HERE****VARIABLES 66-74****TO BE CODED BY THE ZONE CENTER**



**TO BE CODED BY THE ZONE CENTER****INJURY CONSEQUENCES**

66. Time to Death 00  
 \_\_\_\_\_ Code number of hours from time of accident to time of death up through 24 hours. If time of death is greater than 24 hours, code number of days. (Note: 1 day = 31, 2 days = 32, ... n days = 30 + n up through 30 days = 60)  
 (00) Not fatal  
 (96) Fatal - ruled disease  
 (99) Unknown
67. 1st Medically Reported Cause of Death 00
68. 2nd Medically Reported Cause of Death 00
69. 3rd Medically Reported Cause of Death 00  
 \_\_\_\_\_ Code the Occupant Injury from line number(s) for the medically reported injury(s) which reportedly contributed to this occupant's death  
 (00) Not fatal or no additional causes  
 (96) Mode of death given but specific injuries are not linked to cause of death. (specify): \_\_\_\_\_  
 (97) Other result (includes fatal ruled disease) (specify): \_\_\_\_\_  
 (99) Unknown
70. Number of Recorded Injuries for This Occupant 00  
 \_\_\_\_\_ Code the actual number of injuries recorded for this occupant.  
 (00) No recorded injuries  
 (97) Injured, details unknown  
 (99) Unknown if injured

**TRAUMA DATA**

71. Glasgow Coma Scale (GCS) Score 00  
 (at Medical Facility)  
 (00) Not injured  
 (01) Injured - not treated at medical facility  
 (02) No GCS Score at medical facility  
 (03-15) Code the actual value of the initial GCS Score recorded at medical facility.  
 (97) Injured, details unknown  
 (99) Unknown if injured
72. Was the Occupant Given Blood? 1  
 (1) No - blood not given  
 (2) Yes - blood given  
 (specify units): \_\_\_\_\_  
 (9) Unknown if blood given
73. Arterial Blood Gases (ABG) - HCO<sub>3</sub> 00  
 (00) Not injured  
 (01) Injured, ABGs not measured or reported  
 (02-50) Code the actual value of the HCO<sub>3</sub>  
 (96) ABGs reported, HCO<sub>3</sub> unknown  
 (97) Injured, details unknown  
 (99) Unknown if injured

**BELT USE DETERMINATION**

74. Primary Source of Belt Use Determination 1  
 (0) Not equipped/not available/destroyed or rendered inoperative  
 (1) Vehicle inspection  
 (2) Official injury data  
 (3) Driver/occupant interview  
 (8) Other (specify): \_\_\_\_\_  
 (9) Unknown if belt used

**Appendix I:**

**NASS CDS OCCUPANT ASSESSMENT FORM:**

**CASE VEHICLE RIGHT FRONT PASSENGER**



## OCCUPANT ASSESSMENT FORM

1. Primary Sampling Unit Number 10  
2. Case Number - Stratum 9518  
3. Vehicle Number 01  
4. Occupant Number 02

### OCCUPANT'S CHARACTERISTICS

5. Occupant's Age 03  
Code actual age at time of accident.  
(00) Less than one year old (specify by month):  
(97) 97 years and older  
(99) Unknown
6. Occupant's Sex 1  
(1) Male  
(2) Female-not reported pregnant  
(3) Female-pregnant-1st trimester(1st-3rd month)  
(4) Female-pregnant-2nd trimester(4th-6th month)  
(5) Female-pregnant-3rd trimester(7th-9th month)  
(6) Female-pregnant-term unknown  
(9) Unknown
7. Occupant's Height 104  
Code actual height to the nearest centimeter.  
(999) Unknown  
41 inches X 2.54 = 104 centimeters
8. Occupant's Weight 017  
Code actual weight to the nearest kilogram.  
(999) Unknown  
37 pounds X .4536 = 16.7 kilograms
9. Occupant's Role 2  
(1) Driver  
(2) Passenger  
(9) Unknown

### OCCUPANT'S SEATING

10. Occupant's Seat Position 13  
*Front Seat*  
(11) Left side  
(12) Middle  
(13) Right side  
(14) Other (specify):  
(15) On or in the lap of another occupant
- Second Seat*  
(21) Left side  
(22) Middle  
(23) Right side  
(24) Other (specify):  
(25) On or in the lap of another occupant
- Third Seat*  
(31) Left side  
(32) Middle  
(33) Right side  
(34) Other (specify):  
(35) On or in the lap of another occupant
- Fourth Seat*  
(41) Left side  
(42) Middle  
(43) Right side  
(44) Other (specify):  
(45) On or in the lap of another occupant
- (97) In or on unenclosed area  
(98) Other seat (specify):  
(99) Unknown
11. Occupant's Posture 8  
(0) Normal posture
- Abnormal posture*  
(1) Kneeling or standing on seat  
(2) Lying on or across seat  
(3) Kneeling, standing or sitting in front of seat  
(4) Sitting sideways or turned to talk with another occupant or to look out a rear window  
(5) Sitting on a console  
(6) Lying back in a reclined seat position  
(7) Bracing with feet or hands on a surface in front of seat  
(8) Other abnormal posture (specify):  
1/2 Asleep  
(9) Unknown

**EJECTION/ENTRAPMENT**12. Ejection 0

- (0) No ejection
- (1) Complete ejection
- (2) Partial ejection
- (3) Ejection, unknown degree
- (9) Unknown

13. Ejection Area 0

- (0) No ejection
- (1) Windshield
- (2) Left front
- (3) Right front
- (4) Left rear
- (5) Right rear
- (6) Rear
- (7) Roof
- (8) Other area (e.g., back of pickup, etc.)  
(specify): \_\_\_\_\_
- (9) Unknown

14. Ejection Medium 0

- (0) No ejection
- (1) Door/hatch/tailgate
- (2) Nonfixed roof structure
- (3) Fixed glazing
- (4) Nonfixed glazing (specify): \_\_\_\_\_
- (5) Integral structure
- (8) Other medium (specify): \_\_\_\_\_
- (9) Unknown

15. Medium Status (Immediately Prior To Impact) 0

- (0) No ejection
- (1) Open
- (2) Closed
- (3) Integral structure
- (9) Unknown

16. Entrapment 0

- (0) Not entrapped/exit not inhibited
- (1) Entrapped/pinned - mechanically restrained
- (2) Could not exit vehicle due to jammed doors, fire, etc.  
(specify): \_\_\_\_\_
- (9) Unknown

17. Occupant Mobility 1

- (0) Occupant fatal before removed from vehicle
- (1) Removed from vehicle while unconscious or disoriented
- (2) Removed from vehicle due to injuries
- (3) Exited vehicle with some assistance
- (4) Exited vehicle under own power
- (5) Occupant fully ejected
- (9) Unknown

## BELT SYSTEM FUNCTION

18. Manual (Active) Belt System Availability 4

- (0) None available
- (1) Belt removed/destroyed
- (2) Shoulder belt
- (3) Lap belt
- (4) Lap and shoulder belt
- (5) Belt available—type unknown

*Integral Belt Partially Destroyed*

- (6) Shoulder belt (lap belt destroyed/removed)
- (7) Lap belt (shoulder belt destroyed/removed)
- (8) Other belt (specify):

(9) Unknown

19. Manual (Active) Belt System Use 14

- (00) None used, not available, or belt removed/destroyed
- (01) Inoperative (specify):

- (02) Shoulder belt
- (03) Lap belt
- (04) Lap and shoulder belt
- (05) Belt used—type unknown
- (08) Other belt used (specify):

- (12) Shoulder belt used with child safety seat
- (13) Lap belt used with child safety seat
- (14) Lap and shoulder belt used with child safety seat
- (15) Belt used with child safety seat—type unknown
- (18) Other belt used with child safety seat (specify):
- (99) Unknown if belt used

20. Proper Use of Manual (Active) Belts 9

- (0) None used or not available
- (1) Belt used properly
- (2) Belt used properly with child safety seat

*Belt Used Improperly*

- (3) Shoulder belt worn under arm
- (4) Shoulder belt worn behind back or seat
- (5) Belt worn around more than one person
- (6) Lap belt worn on abdomen
- (7) Lap belt or lap and shoulder belt used improperly with child safety seat (specify):

(8) Other improper use of manual belt system (specify):

(9) Unknown

21. Manual (Active) Belt Failure Modes During Accident 1

- (0) No manual belt used or not available
- (1) No manual belt failure(s)
- (2) Torn webbing (stretched webbing not included)
- (3) Broken buckle or latchplate
- (4) Upper anchorage separated
- (5) Other anchorage separated (specify):

- (6) Broken retractor
- (7) Combination of above (specify):

(8) Other manual belt failure (specify):

(9) Unknown

22. Shoulder Belt Upper Anchorage Adjustment 1

- (0) No shoulder belt
- (1) No upper anchorage adjustment for shoulder belt

*Adjustable shoulder Belt Upper Anchorage*

- (2) In full up position
- (3) In mid position
- (4) In full down position
- (5) Position unknown
- (9) Unknown if position has adjustable upper anchorage adjustment

23. Automatic (Passive) Belt System Availability/Function 0

- (0) Not equipped/not available
- (1) 2 point automatic belts
- (2) 3 point automatic belts
- (3) Automatic belts - type unknown

*Non-functional*

- (4) Automatic belts destroyed or rendered inoperative
- (9) Unknown

24. Automatic (Passive) Belt System Use 0

- (0) Not equipped/not available/destroyed or rendered inoperative
- (1) Automatic belt in use
- (2) Automatic belt not in use (manually disconnected, motorized track inoperative) (specify):
- (3) Automatic belt use unknown
- (9) Unknown

25. Automatic (Passive) Belt System Type 0

- (0) Not equipped/not available
- (1) Non-motorized system
- (2) Motorized system
- (9) Unknown

26. Proper Use of Automatic (Passive) Belt System 0

- (0) Not equipped/not available/not used
- (1) Automatic belt used properly
- (2) Automatic belt used properly with child safety seat

*Automatic Belt Used Improperly*

- (3) Automatic shoulder belt worn under arm
- (4) Automatic shoulder belt worn behind back
- (5) Automatic belt worn around more than one person
- (6) Lap portion of automatic belt worn on abdomen
- (7) Automatic lap and shoulder belt or automatic shoulder belt used improperly with child safety seat (specify):

(8) Other improper use of automatic belt system (specify):

(9) Unknown

27. Automatic (Passive) Belt Failure Modes During Accident 0

- (0) Not equipped/not available/not in use
- (1) No automatic belt failure(s)
- (2) Torn webbing (stretched webbing not included)
- (3) Broken buckle or latchplate
- (4) Upper anchorage separated
- (5) Other anchorage separated (specify):

- (6) Broken retractor
- (7) Combination of above (specify):

(8) Other automatic belt failure (specify):

(9) Unknown

POLICE REPORTED RESTRAINT USE	AIR BAG SYSTEM FUNCTION
<p>28. Police Reported Belt Use <u>4</u></p> <p>(0) None used</p> <p>(1) Police did not indicate belt use</p> <p>(2) Shoulder belt</p> <p>(3) Lap belt</p> <p>(4) Lap and shoulder belt</p> <p>(5) Belt used, type not specified</p> <p>(6) Child safety seat</p> <p>(7) Automatic belt</p> <p>(8) Other type belt, (specify): _____</p> <p>(9) Police indicated "unknown" _____</p>	<p>30. Frontal Air Bag System Availability/Function (This Occupant Position) <u>1</u></p> <p>(0) Not equipped/not available</p> <p>(1) Air bag</p> <p><i>Non-functional</i></p> <p>(2) Air bag disconnected (specify): _____</p> <p>(3) Air bag not reinstalled</p> <p>(9) Unknown</p>
<p>29. Police Reported Air Bag Availability/Function <u>2</u></p> <p>(0) No air bag available</p> <p>(1) Police did not indicate air bag availability/function</p> <p>(2) Deployed</p> <p>(3) Not deployed</p> <p>(4) Unknown if deployed</p> <p>(9) Police indicated "unknown"</p>	<p>31. Frontal Air Bag System Deployment (This Occupant Position) <u>1</u></p> <p>(0) Not equipped/not available</p> <p>(1) Deployed during accident (as a result of impact)</p> <p>(2) Deployed inadvertently just prior to accident</p> <p>(3) Deployed, details unknown</p> <p>(4) Deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)</p> <p>(5) Unknown if deployed</p> <p>(7) Nondeployed</p> <p>(9) Unknown</p>
<p>Check the Primary Source Used In Determining Belt Use.</p> <p>[ ] Not equipped/not available/destroyed or rendered inoperative</p> <p>[X] Vehicle inspection</p> <p>[ ] Official injury data</p> <p>[ ] Driver/occupant interview</p> <p>[ ] Other (specify): _____</p> <p>[ ] Unknown if belt used _____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	<p>32. Other Than First Seat Frontal Air Bag Availability/Function (This Occupant Position) <u>0</u></p> <p>(0) Not equipped/not available</p> <p>(1) Air bag</p> <p><i>Non-functional</i></p> <p>(2) Air bag disconnected (specify): _____</p> <p>(3) Air bag not reinstalled</p> <p>(9) Unknown</p> <p><i>Specify type of "other" air bag present:</i> _____</p>
	<p>33. Air Bag(s) Deployment, Other Than First Seat Frontal (This Occupant Position) <u>0</u></p> <p>(0) Not equipped with an "other" air bag</p> <p>(1) Deployed during accident (as a result of impact)</p> <p>(2) Deployed inadvertently just prior to accident</p> <p>(3) Deployed, details unknown</p> <p>(4) Deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)</p> <p>(5) Unknown if deployed</p> <p>(7) Nondeployed</p> <p>(9) Unknown</p>
	<p>34. Are There Indications of Air Bag System Failure? (This Occupant Position) <u>1</u></p> <p>(0) Not equipped/not available</p> <p>(1) No</p> <p>(2) Yes (specify): _____</p> <p>(9) Unknown</p>

## FIRST SEAT FRONTAL AIR BAG SYSTEM EVALUATION

35. Had Vehicle Been in Previous Accident(s)? 1

(0) Not equipped/not available

(1) No previous accidents

Yes

(2) Previous accident(s) without deployment(s)

(3) One previous accident with deployment

(4) More than one previous accident with at least one deployment

(8) Previous accidents, unknown deployment status

(9) Unknown

36. Type of Air Bag 1

(0) Not equipped/not available

(1) Original manufacturer installed system

(2) Retrofitted air bag

(3) Replacement air bag

(8) Unknown type of air bag

(9) Unknown

37. Had Any Prior Maintenance/Service Been Performed On This Air Bag System? 1

(0) Not equipped/not available

(1) No prior maintenance

(2) Yes, prior maintenance (specify): \_\_\_\_\_

(9) Unknown

38. Air Bag Deployment Accident Event Sequence Number 01

(00) Not equipped/not available

\_\_\_\_ Code the accident event sequence number that initiated the air bag deployment

(96) Deployed, unknown event

(97) Not deployed

(98) Unknown if deployed

(99) Unknown

39. CDC For Air Bag Deployment Impact 1

(0) Not equipped/not available

(1) Highest delta V

(2) Second highest delta V

(3) Other non-coded delta V (specify): \_\_\_\_\_

(6) Deployed, unknown event

(7) Not deployed

(8) Unknown if deployed

(9) Unknown

40. Longitudinal Component of

Delta V For Air Bag

Deployment Impact

(\_000) Not equipped/not available

Code the value of the delta V for the impact that initiated the air bag deployment

(\_996) Deployment, unknown longitudinal Delta V

(\_997) Not deployed

(\_998) Unknown if deployed

(\_999) Unknown

41. Did Air Bag Module Cover Flap(s) Open At Designated Tear Points? 2

(0) Not equipped/not available

(1) No

(2) Yes

(3) Deployed, unknown if flap(s) opened at designated tear points

(7) Not deployed

(8) Unknown if deployed

(9) Unknown

42. Were Air Bag Module Cover Flap(s) Damaged? 1

(0) Not equipped/not available

(1) No

(2) Yes (specify): \_\_\_\_\_

(3) Deployed, unknown if air bag module cover flap(s) damaged

(7) Not deployed

(8) Unknown if deployed

(9) Unknown

43. Was There Damage To The Air Bag? 01

(00) Not equipped/not available

(01) Not damaged

Yes - Air Bag Damage

(02) Ruptured

(03) Cut

(04) Torn

(05) Holed

(06) Burned

(07) Abraded

(88) Other damage (specify): \_\_\_\_\_

(95) Damaged, details unknown

(96) Deployed, unknown if damaged

(97) Not deployed

(98) Unknown if deployed

(99) Unknown

**FIRST SEAT FRONTAL AIR BAG SYSTEM  
EVALUATION** *continued*

44. Source of Air Bag Damage 01  
 (00) Not equipped/not available  
 (01) Not damaged  
 (02) Object worn by occupant, (specify):  
 (03) Object carried by occupant, (specify):  
 (04) Adaptive/assistive controls, (specify):  
 (05) Fire in vehicle  
 (06) Thermal burns  
 (07) Rescue or emergency efforts  
 (08) Other damage source (specify):  
 (95) Damaged, unknown source  
 (96) Deployed, unknown if damaged  
 (97) Not deployed  
 (98) Unknown if deployed  
 (99) Unknown
45. Was The Air Bag Tethered? Y  
 (0) Not equipped/not available  
 (1) No  
 (2) Yes (specify number of tether straps):  
1 WIDE - SEAM to SEAM  
 (3) Deployed, unknown if tethered  
 (7) Not deployed  
 (8) Unknown if deployed  
 (9) Unknown
46. Did The Air Bag Have Vent Ports? 1  
 (0) Not equipped/not available  
 (1) No  
 (2) Yes (specify number of vent ports):  
 (3) Deployed, unknown if vent ports present  
 (7) Not deployed  
 (8) Unknown if deployed  
 (9) Unknown
47. Was the Air Bag in this Occupant's Position Contacted by Another Occupant? 1  
 (0) Not equipped/not available  
 (1) No  
 (2) Yes (specify):  
 (3) Deployed, unknown if other occupant contact to air bag  
 (7) Not deployed  
 (8) Unknown if deployed  
 (9) Unknown
48. Was This Occupant Wearing Eye-wear? 1  
 (0) Not equipped/not available  
 (1) No  
 (2) Eyeglasses/sunglasses  
 (3) Contact lenses  
 (4) Deployed, unknown if eyewear worn  
 (7) Not deployed  
 (8) Unknown if deployed  
 (9) Unknown

**HEAD RESTRAINT AND SEAT EVALUATION**

49. Head Restraint Type/Damage by Occupant at This Occupant Position 3  
 (0) No head restraints  
 (1) Integral—no damage  
 (2) Integral—damaged during accident  
 (3) Adjustable—no damage  
 (4) Adjustable—damaged during accident  
 (5) Add-on—no damage  
 (6) Add-on—damaged during accident  
 (8) Other (specify):  
 (9) Unknown
50. Seat Type (this Occupant Position) 02  
 (00) Occupant not seated or no seat  
 (01) Bucket  
 (02) Bucket with folding back  
 (03) Bench  
 (04) Bench with separate back cushions  
 (05) Bench with folding back(s)  
 (06) Split bench with separate back cushions  
 (07) Split bench with folding back(s)  
 (08) Pedestal (i.e., column supported)  
 (09) Box mounted seat (i.e., van type)  
 (10) Other seat type (specify):  
 (99) Unknown
51. Seat Orientation (this Occupant Position) 1  
 (0) Occupant not seated or no seat  
 (1) Forward facing seat  
 (2) Rear facing seat  
 (3) Side facing seat (inward)  
 (4) Side facing seat (outward)  
 (8) Other (specify):  
 (9) Unknown
52. Seat Track Adjusted Position Prior To Impact 5  
 (0) Occupant not seated or no seat  
 (1) Non-adjustable seat track
- Adjustable Seat Track**  
 (2) Seat at forward most track position  
 (3) Seat between forward most and middle track positions  
 (4) Seat at middle track position  
 (5) Seat between middle and rear most track positions  
 (6) Seat at rear most track position  
 (9) Unknown



HEAD RESTRAINT AND SEAT EVALUATION *continued*53. Seat Back Incline Prior and Post Impact 23

- (00) Occupant not seated or no seat  
 (01) Not adjustable

*Upright prior to impact*

- (11) Moved to completely rearward position  
 (12) Moved to rearward midrange position  
 (13) Moved to slightly rearward position  
 (14) Retained pre-impact position  
 (15) Moved to slightly forward position  
 (16) Moved to forward midrange position  
 (17) Moved to completely forward position

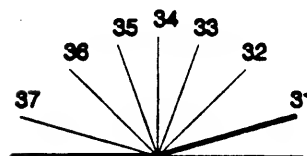
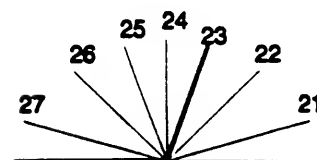
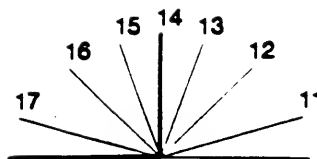
*Slightly reclined prior to impact*

- (21) Moved to completely rearward position  
 (22) Moved to rearward midrange position  
 (23) Retained pre-impact position  
 (24) Moved to upright position  
 (25) Moved to slightly forward position  
 (26) Moved to forward midrange position  
 (27) Moved to completely forward position

*Completely reclined prior to impact*

- (31) Retained pre-impact position  
 (32) Moved to rearward midrange position  
 (33) Moved to slightly rearward position  
 (34) Moved to upright position  
 (35) Moved to slightly forward position  
 (36) Moved to forward midrange position  
 (37) Moved to completely forward position

(99) Unknown

54. Seat Performance (this Occupant Position) 1

- (0) Occupant not seated or no seat  
 (1) No seat performance failure(s)  
 (2) Seat adjusters failed  
 (3) Seat back folding locks or "seat back" failed (specify): \_\_\_\_\_  
 (4) Seat track/anchors failed  
 (5) Deformed by impact of occupant  
 (6) Deformed by passenger compartment intrusion, (specify): \_\_\_\_\_  
 (7) Combination of above (specify): \_\_\_\_\_  
 (8) Other (specify): \_\_\_\_\_  
 (9) Unknown

## CHILD SAFETY SEAT

55. Child Safety Seat Make/Model 3 2 2

(000) No child safety seat

Applicable codes are found in your NASS CDS  
Data Collection, Coding and Editing

(950) Built-in child safety seat

(997) Other make/model (specify):  
\_\_\_\_\_

(998) Unknown make/model

(999) Unknown if child safety seat used

56. Type of Child Safety Seat 5

(0) No child safety seat

(1) Infant seat

(2) Toddler seat

(3) Convertible seat

(4) Booster seat - with shield

(5) Booster seat - without shield

(7) Other type child safety seat (specify):  
\_\_\_\_\_

(8) Unknown child safety seat type

(9) Unknown if child safety seat used

57. Child Safety Seat Orientation 1 2

(00) No child safety seat

*Designed for Rear Facing for This Age/Weight*

(01) Rear facing

(02) Forward facing

(08) Other orientation (specify):  
\_\_\_\_\_

(09) Unknown orientation

*Designed For Forward Facing for This Age/Weight*

(11) Rear facing

(12) Forward facing

(18) Other orientation (specify):  
\_\_\_\_\_

(19) Unknown orientation

*Unknown Design or Orientation For This  
Age/Weight, or Unknown Age/Weight*

(21) Rear facing

(22) Forward facing

(28) Other orientation (specify):  
\_\_\_\_\_

(29) Unknown orientation

(99) Unknown if child safety seat used

58. Child Safety Seat Harness Usage 1 159. Child Safety Seat Shield Usage 1 160. Child Safety Seat Tether Usage 1 1Note: Options below applicable to  
Variables OA58-OA60.

(00) No child safety seat

*Not Designed With Harness/Shield/Tether*(01) After market harness/shield/tether  
added, not used

(02) After market harness/shield/tether used

(03) Child safety seat used, but no after market  
harness/shield/tether added(09) Unknown if harness/shield/tether  
added or used*Designed With Harness/Shield/Tether*

(11) Harness/shield/tether not used

(12) Harness/shield/tether used

(19) Unknown if harness/shield/tether used

*Unknown If Designed With Harness/Shield/Tether*

(21) Harness/shield/tether not used

(22) Harness/shield/tether used

(29) Unknown if harness/shield/tether used

(99) Unknown if child safety seat used

**INJURY CONSEQUENCES**61. Injury Severity (Police Rating) 3

- (0) O - No injury
- (1) C - Possible injury
- (2) B - Nonincapacitating injury
- (3) A - Incapacitating injury
- (4) K - Killed
- (5) U - Injury, severity unknown
- (6) Died prior to accident
- (9) Unknown

62. Treatment - Mortality 3

- (0) No treatment
- (1) Fatal
- (2) Fatal - ruled disease (specify):  
\_\_\_\_\_

*Nonfatal*

- (3) Hospitalization
- (4) Transported and released
- (5) Treatment at scene - nontransported
- (6) Treatment later
- (7) Treatment - other (specify):  
\_\_\_\_\_
- (8) Transported to a medical facility-unknown if treated
- (9) Unknown

63. Type Of Medical Facility (for Initial Treatment) 1

- (0) Not treated at a medical facility
- (1) Trauma center
- (2) Hospital
- (3) Medical clinic
- (4) Physician's office
- (5) Treatment later at medical facility
- (8) Other (specify):  
\_\_\_\_\_

(9) Unknown

64. Hospital Stay 1 3

(00) Not Hospitalized

Code the number of days (up through 60) that the occupant stayed in hospital.

- (61) 61 days or more *Transferred*
- (99) Unknown *to Rehabilitation thereafterwards*

65. Working Days Lost 9 7

Code the number of days (up through 60) that the occupant lost from work due to the accident

- (00) No working days lost
- (61) 61 days or more
- (62) Fatally injured
- (97) Not working prior to accident
- (99) Unknown

**STOP WORK HERE****VARIABLES 66-74****TO BE CODED BY THE ZONE CENTER**

**TO BE CODED BY THE ZONE CENTER****INJURY CONSEQUENCES**66. Time to Death 00

Code number of hours from time of accident to time of death up through 24 hours. If time of death is greater than 24 hours, code number of days. (Note: 1 day = 31, 2 days = 32, ... n days = 30 + n up through 30 days = 60)

- (00) Not fatal  
(96) Fatal - ruled disease  
(99) Unknown

67. 1st Medically Reported Cause of Death 0068. 2nd Medically Reported Cause of Death 0069. 3rd Medically Reported Cause of Death 00

Code the Occupant Injury from line number(s) for the medically reported injury(s) which reportedly contributed to this occupant's death

- (00) Not fatal or no additional causes  
(96) Mode of death given but specific injuries are not linked to cause of death. (specify):

(97) Other result (includes fatal ruled disease) (specify):

(99) Unknown

70. Number of Recorded Injuries for This Occupant 14

Code the actual number of injuries recorded for this occupant.

- (00) No recorded injuries  
(97) Injured, details unknown  
(99) Unknown if injured

**TRAUMA DATA**71. Glasgow Coma Scale (GCS) Score 03

(at Medical Facility)

- (00) Not injured  
(01) Injured - not treated at medical facility  
(02) No GCS Score at medical facility  
(03-15) Code the actual value of the initial GCS Score recorded at medical facility.  
(97) Injured, details unknown  
(99) Unknown if injured

72. Was the Occupant Given Blood? 1

(1) No - blood not given

(2) Yes - blood given

(specify units):

(9) Unknown if blood given

73. Arterial Blood Gases (ABG) - HCO<sub>3</sub> 01

(00) Not injured

(01) Injured, ABGs not measured or reported

(02-50) Code the actual value of the HCO<sub>3</sub>

(96) ABGs reported, HCO<sub>3</sub> unknown

(97) Injured, details unknown

(99) Unknown if injured

**BELT USE DETERMINATION**74. Primary Source of Belt Use Determination 1

(0) Not equipped/not available/destroyed or rendered inoperative

(1) Vehicle inspection

(2) Official injury data

(3) Driver/occupant interview

(8) Other (specify):

(9) Unknown if belt used

**Appendix J:**

**NASS CDS OCCUPANT INJURY FORM:  
CASE VEHICLE RIGHT FRONT PASSENGER**



U.S. Department of Transportation  
National Highway Traffic Safety  
Administration

## OCCUPANT INJURY FORM

Form Approved  
O.M.B. No. 2127-0021  
NATIONAL ACCIDENT SAMPLING SYSTEM  
CRASHWORTHINESS DATA SYSTEM

1. Primary Sampling Unit Number

10

3. Vehicle Number

01

2. Case Number - Stratum

9518

4. Occupant Number

02

### INJURY DATA

Record below the actual injuries sustained by this occupant that were identified from the official and unofficial data sources. Remember not to double count an injury just because it was identified from two different sources. If greater than ten injuries have been documented, encode the balance on the Occupant Injury Supplement.

Source of Injury Data	Body Region	Type of Anatomic Structure	A.I.S. - 90			Aspect	Injury Source	Injury Source Confidence Level	Direct/Indirect Injury	Occupant Area Intrusion Number	
			Specific Anatomic Structure	Level of Injury	A.I.S. Severity						
Brain Stem 1st Shear Injury	5. <u>2</u>	6. <u>1</u>	7. <u>4</u>	8. <u>02</u>	9. <u>06</u>	10. <u>5</u>	11. <u>8</u>	12. <u>180</u>	13. <u>1</u>	14. <u>1</u>	15. <u>00</u>
Bilateral Cerebral 2nd Shear Injury	16. <u>2</u>	17. <u>1</u>	18. <u>4</u>	19. <u>06</u>	20. <u>28</u>	21. <u>5</u>	22. <u>3</u>	23. <u>180</u>	24. <u>1</u>	25. <u>1</u>	26. <u>00</u>
Cerebral Contusions sub-3rd Frontal + Temporal lobes	27. <u>2</u>	28. <u>1</u>	29. <u>4</u>	30. <u>06</u>	31. <u>14</u>	32. <u>3</u>	33. <u>1</u>	34. <u>180</u>	35. <u>1</u>	36. <u>1</u>	37. <u>00</u>
Subdural 4th hematoma temporal lobe	38. <u>2</u>	39. <u>1</u>	40. <u>4</u>	41. <u>06</u>	42. <u>52</u>	43. <u>4</u>	44. <u>1</u>	45. <u>180</u>	46. <u>1</u>	47. <u>1</u>	48. <u>00</u>
Diffuse Brain 5th Swelling hemisphere	49. <u>3</u>	50. <u>1</u>	51. <u>4</u>	52. <u>06</u>	53. <u>62</u>	54. <u>3</u>	55. <u>1</u>	56. <u>180</u>	57. <u>1</u>	58. <u>1</u>	59. <u>00</u>
Subarachnoid hemorrhage temporal area	60. <u>3</u>	61. <u>1</u>	62. <u>4</u>	63. <u>06</u>	64. <u>84</u>	65. <u>3</u>	66. <u>1</u>	67. <u>180</u>	68. <u>1</u>	69. <u>1</u>	70. <u>00</u>
Concussion + 7th Coma, etc.	71. <u>2</u>	72. <u>1</u>	73. <u>6</u>	74. <u>08</u>	75. <u>24</u>	76. <u>5</u>	77. <u>0</u>	78. <u>180</u>	79. <u>1</u>	80. <u>1</u>	81. <u>00</u>
Fracture 8th Nasal bone	82. <u>2</u>	83. <u>2</u>	84. <u>5</u>	85. <u>10</u>	86. <u>00</u>	87. <u>1</u>	88. <u>4</u>	89. <u>180</u>	90. <u>1</u>	91. <u>1</u>	92. <u>00</u>
Facial 9th Abrasions: Nose, lips, chin, cheeks	93. <u>2</u>	94. <u>2</u>	95. <u>9</u>	96. <u>02</u>	97. <u>02</u>	98. <u>1</u>	99. <u>0</u>	100. <u>180</u>	101. <u>1</u>	102. <u>1</u>	103. <u>00</u>
Abrasion 10th forehead	104. <u>8</u>	105. <u>2</u>	106. <u>9</u>	107. <u>02</u>	108. <u>02</u>	109. <u>1</u>	110. <u>7</u>	111. <u>180</u>	112. <u>1</u>	113. <u>1</u>	114. <u>00</u>

# OCCUPANT INJURY DATA

A.I.S. - 90											
Source of Injury Data	Body Region	Type of Anatomic Structure	Specific Anatomic Structure	Level of Injury	A.I.S. Severity	Aspect	Injury Source	Injury Source Confidence Level	Direct/ Indirect Injury	Occupant Area Intrusion Number	
Bilateral Peri-orbital Contusions	2	2	9	74	02	1	3	180	1	1	00
Contusions both shoulders	8	7	9	04	02	1	3	180	1	1	00
Contusion 13th Upper Arm	8	7	9	04	02	1	2	180	1	1	00
Contusion 14th Anterior Thigh	8	8	9	04	02	1	2	180	2	1	00
15th	—	—	—	—	—	—	—	—	—	—	—
16th	—	—	—	—	—	—	—	—	—	—	—
17th	—	—	—	—	—	—	—	—	—	—	—
18th	—	—	—	—	—	—	—	—	—	—	—
19th	—	—	—	—	—	—	—	—	—	—	—
20th	—	—	—	—	—	—	—	—	—	—	—
21st	—	—	—	—	—	—	—	—	—	—	—
22nd	—	—	—	—	—	—	—	—	—	—	—
23rd	—	—	—	—	—	—	—	—	—	—	—
24th	—	—	—	—	—	—	—	—	—	—	—
25th	—	—	—	—	—	—	—	—	—	—	—

**OCCUPANT INJURY CLASSIFICATION**

Body Region	Specific Anatomic Structure	Level of Injury	Aspect
(1) Head		Specific injuries are assigned consecutive two-digit numbers beginning with 02.	(1) Right
(2) Face			(2) Left
(3) Neck	<u>Vessels, Nerves, Organs.</u>	To the extent possible, within the organizational framework of the AIS, 00 is assigned to an injury NFS as to severity or where only one injury is given in the dictionary for that anatomic structure. 99 is assigned to any injury NFS as to lesion or severity.	(3) Bilateral
(4) Thorax	<u>Bones, Joints</u> are assigned consecutive two digit numbers beginning with 02.		(4) Central
(5) Abdomen		The exceptions to this rule apply to:	(5) Anterior
(6) Spine			(6) Posterior
(7) Upper Extremity			(7) Superior
(8) Lower Extremity			(8) Inferior
(9) Unspecified			(9) Unknown
			(0) Whole region
Type of Anatomic Structure	Whole Area	Abbreviated Injury Scale	
(1) Whole Area	(02) Skin - Abrasion	(1) Minor Injury	
(2) Vessels	(04) Skin - Contusion	(2) Moderate Injury	
(3) Nerves	(06) Skin - Laceration	(3) Serious Injury	
(4) Organs (includes Muscles/ligaments)	(08) Skin - Avulsion	(4) Severe Injury	
(5) Skeletal (includes joints)	(10) Amputation	(5) Critical Injury	
(6) Head - LOC	(20) Burn	(6) Maximum (untreatable)	
(9) Skin	(30) Crush	(7) Injured, unknown severity	
	(40) Degloving		
	(50) Injury - NFS		
	(90) Trauma, other than mechanical		
	<u>Head - LOC</u>		
	(02) Length of LOC		
	(04) Level		
	(06) of		
	(08) Consciousness		
	(10) Concussion		
	<u>Spine</u>		
	(02) Cervical		
	(04) Thoracic		
	(06) Lumbar		

**SOURCE OF INJURY DATA****INJURY SOURCE****DIRECT/INDIRECT INJURY****CONFIDENCE LEVEL**OFFICIAL RECORDS

- (1) Autopsy records with or without hospital/medical records
- (2) Hospital/medical records other than emergency room (e.g., discharge summary)
- (3) Emergency room records only (including associated X-rays or other lab reports)
- (4) Private physician, walk-in or emergency clinic

UNOFFICIAL RECORDS

- (5) Lay coroner report
- (6) E.M.S. personnel
- (7) Interviewee
- (8) Other source (specify): \_\_\_\_\_
- (9) Police

- (1) Certain
- (2) Probable
- (3) Possible
- (9) Unknown

- (1) Direct contact injury
- (2) Indirect contact injury
- (3) Noncontact injury
- (7) Injured, unknown source



• Mom took patient out of car, out of car on arrival of EMS (ED, EN, CN1, CN5)

# OFFICIAL INJURY DATA – SOFT TISSUE INJURIES

• Also hit dashboard (CN1)

• ? whether hit dashboard prior to air bag deployment (CN5)

Indicate the Location, Specific Anatomic Structure, Detail (size, depth, fracture type, head injury clinical signs and neurological deficits), and Source of all injuries indicated by official sources (or from PAR or other unofficial sources if medical records and interviewee data are unavailable.)

Weight estimated @ 15 kg (EN)

• Significant hemorrhage in

Oropharynx (CN2)

• Facial abrasions oozing blood (CN5)

• Multiple facial abrasions [DS, CN3, CN4]

upper lip (HP, ED) [CN5, CN6, CN7, CN8, DO]

chin (HP, ED, EN, CN9)

nose (ED, EN, CN1, CN9)

cheeks (EN)

mouth (CN1)

• Subglottic edema (CN8)

• Cerebral spinal fluid (clear)

① nostril in ER (HP, EN, CN1)

• Head atraumatic (CN2)

• Face edematous (CN2, CN5)

• Eyes black + blue (ecchymosis) + swollen shut (edema)

[CN4, CN5, CN6, CN7, CN10]

• CSF from ear, ear unspecified, No Battle's sign (CN3)

? deformity ① wrist (HP, ED, CN1)

① wrist with edema, flacid (EN)

Final Dx: Facial Abrasions (DS)

• PT transferred from PICU to General Pediatrics 8th day post-crash (CN9)

• Pt transferred for physical therapy, occupational therapy, Neuro-Rehab, and speech therapy (DS)

- Driver side air bag did not deploy (DS)
- Air bag injury (CN9)
- Right front passenger air bag deployed (DS, HP, ED, EN, CN1, CN2, SW, CN5, CN6, CN8)

# OFFICIAL INJURY DATA — SKELETAL INJURIES

Restrained?

— No

✓ Yes

(CN3, CN7)

Blood Alcohol Level (mg/dl)

BAL = —

Glasgow Coma Scale Score

GCSS = 3  
(HP, CN3)

Units of Blood Given

Units = —

Arterial Blood Gases

pH = —

PO<sub>2</sub> = —

PCO<sub>2</sub> = —

HCO<sub>3</sub> = —

GCS = 6 on 2nd day (CN4)

- Belted in car seat facing forward (DS, HP, ED, EN, CN1, CN2, SW, CN4, CN5, CN8)

Indicate the Location, Specific Anatomic Structure, Detail (size, depth, fracture type, head injury clinical signs and neurological deficits), and Source of all injuries indicated by official sources (or from PAR or other unofficial sources if medical records and interviewee data are unavailable.)

- ? Left fracture (ED)

- Unstable mandible (EN, CN1)

- Free floating mandible (HP, CN3)

- ? loose mandible (CN2)

- Probable subperiosteal hematoma maxillary bone (PX)

- L Wrist: no distal radial or ulnar Fx (PX)

- Orbits: No Fx

- Nasal Fx (PX)

- ? Mandible Fx (CN8)

- Mandible Fx (ED, CN4, CN6, DO)

- C-spine: Negative (DO, EX)

- Mandible: no Fx or dislocation (EX)

- Chest: Negative (DO, EX)

- Abdomen: Normal (DO, EX)

- Hyperdense shear injury in genu of internal capsule on (R) (EX)

- Multiple hemorrhagic shear injuries involving both the brain stem, basal ganglia, + cortical gray-white junctions bilaterally specifically, (R) pons, (R) globus pallidus, (R) caudate head, (R) posterior internal capsule/globus pallidus + (R) frontal gray-white junction (PX)

- No evidence of any spinal cord injury or bone injury (DS, CN1)

- No skull Fx (EX)

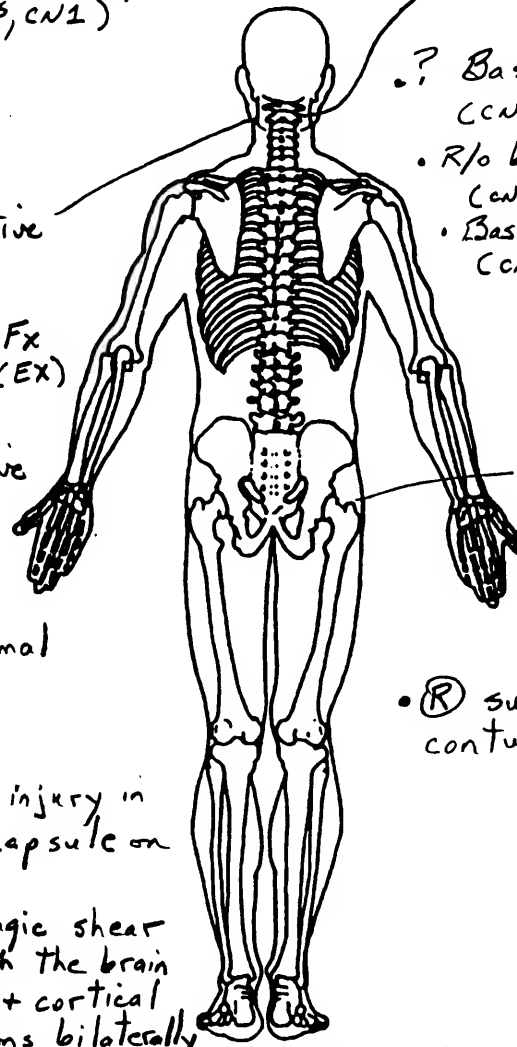
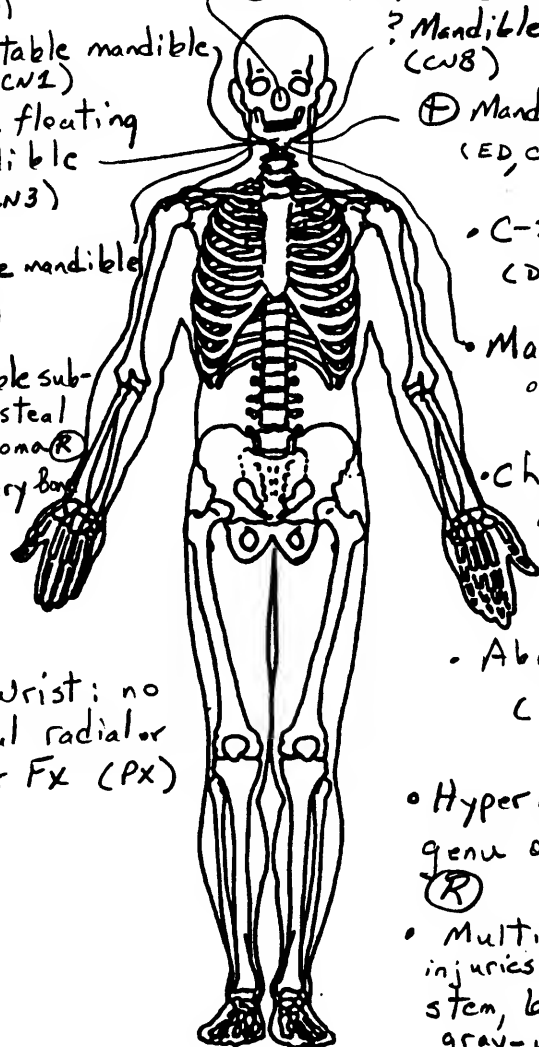
- ? Basilar skull Fx (CN6)

- R/o basilar skull Fx (CN6)

- Basilar skull Fx (CN8)

Pt grimacing to (R) hip flexion (CN9)

- (R) subfrontal contusion (PX)



## INJURY SOURCES

### FRONT

- (001) Windshield
- (002) Mirror
- (003) Sunvisor
- (004) Steering wheel rim
- (005) Steering wheel hub/spoke
- (006) Steering wheel (combination of codes 004 and 005)
- (007) Steering column, transmission selector lever, other attachment
- (008) Cellular telephone or CB radio
- (009) Add on equipment (e.g., tape deck, air conditioner)
- (010) Left instrument panel and below
- (011) Center instrument panel and below
- (012) Right instrument panel and below
- (013) Glove compartment door
- (014) Knee bolster
- (015) Windshield including one or more of the following: front header, A (A1/A2)-pillar, instrument panel, mirror, or steering assembly (driver side only)
- (016) Windshield including one or more of the following: front header, A (A1/A2)-pillar, instrument panel, or mirror (passenger side only)
- (017) Windshield reinforced by exterior object (specify):
- (019) Other front object (specify):

### LEFT SIDE

- (051) Left side interior surface, excluding hardware or armrests
- (052) Left side hardware or armrest
- (053) Left A (A1/A2)-pillar
- (054) Left B-pillar
- (055) Other left pillar (specify):
- (056) Left side window glass
- (057) Left side window frame
- (058) Left side window sill
- (059) Left side window glass including one or more of the following: frame, window sill, A (A1/A2)-pillar, B-pillar, or roof side rail.
- (060) Other left side object (specify):

### RIGHT SIDE

- (101) Right side interior surface, excluding hardware or armrests

- (102) Right side hardware or armrest
- (103) Right A (A1/A2)-pillar
- (104) Right B-pillar
- (105) Other right pillar (specify):
- (106) Right side window glass
- (107) Right side window frame
- (108) Right side window sill
- (109) Right side window glass including one or more of the following: frame, window sill, A (A1/A2)-pillar, B-pillar, or roof side rail.
- (110) Other right side object (specify):

### INTERIOR

- (151) Seat, back support
- (152) Belt restraint webbing/buckle
- (153) Belt restraint B-pillar or door frame attachment point
- (154) Other restraint system component (specify):
- (155) Head restraint system
- (160) Other occupants (specify):
- (161) Interior loose objects
- (162) Child safety seat (specify):
- (163) Other interior object (specify):

### AIR BAG

- (170) Air bag-driver side
- (171) Air bag-driver side and eyewear
- (172) Air bag-driver side and jewelry
- (173) Air bag-driver side and object held
- (174) Air bag-driver side and object in mouth
- (175) Air bag compartment cover-driver side
- (176) Air bag compartment cover-driver side and eyewear
- (177) Air bag compartment cover-driver side and jewelry
- (178) Air bag compartment cover-driver side and object held
- (179) Air bag compartment cover-driver side and object in mouth
- (180) Air bag-passenger side
- (181) Air bag-passenger side and eyewear
- (182) Air bag-passenger side and jewelry

- (183) Air bag-passenger side and object held
- (184) Air bag-passenger side and object in mouth
- (185) Air bag compartment cover-passenger side
- (186) Air bag compartment cover-passenger side and eyewear
- (187) Air bag compartment cover-passenger side and jewelry
- (188) Air bag compartment cover-passenger side and object held
- (189) Air bag compartment cover-passenger side and object in mouth
- (190) Other air bag (specify)
- (195) Other air bag compartment cover (specify)

### ROOF

- (201) Front header
- (202) Rear header
- (203) Roof left side rail
- (204) Roof right side rail
- (205) Roof or convertible top

### FLOOR

- (251) Floor (including toe pan)
- (252) Floor or console mounted transmission lever, including console
- (253) Parking brake handle
- (254) Foot controls including parking brake

### REAR

- (301) Backlight (rear window)
- (302) Backlight storage rack, door, etc.
- (303) Other rear object (specify):

### ADAPTIVE (ASSISTIVE) DRIVING EQUIPMENT

- (401) Hand controls for braking/acceleration
- (402) Steering control devices (attached to OEM steering wheel)
- (403) Steering knob attached to steering wheel
- (405) Replacement steering wheel (i.e., reduced diameter)
- (406) Joy stick steering controls
- (407) Wheelchair tie-downs
- (408) Modification to seat belts, (specify):
- (409) Additional or relocated switches, (specify):
- (410) Raised roof

- (411) Wall mounted head rest (used behind wheel chair)
- (412) Other adaptive device (specify):

### EXTERIOR OF OCCUPANT'S VEHICLE

- (451) Hood
- (452) Outside hardware (e.g., outside mirror, antenna)
- (453) Other exterior surface or trim (specify):
- (454) Unknown exterior objects

### EXTERIOR OF OTHER MOTOR VEHICLE

- (501) Front bumper
- (502) Hood edge
- (503) Other front of vehicle (specify):
- (504) Hood
- (505) Hood ornament
- (506) Windshield, roof rail, A-pillar
- (507) Side surface
- (508) Side mirrors
- (509) Other side protrusions (specify):
- (510) Rear surface
- (511) Underside
- (512) Tires and wheels
- (513) Other exterior of other motor vehicle (specify):
- (514) Unknown exterior of other motor vehicle

### OTHER VEHICLE OR OBJECT IN THE ENVIRONMENT

- (551) Ground
- (598) Other vehicle or object (specify):
- (599) Unknown vehicle or object

### NONCONTACT INJURY

- (601) Fire in vehicle
- (602) Flying glass
- (603) Other noncontact injury source (specify):
- (604) Air bag exhaust gases
- (697) Injured, unknown source

• No significant pain response per paramedics (CN2)

• Ranch. II-III (CN8)

# OFFICIAL INJURY DATA - INTERNAL INJURIES

• ICP Monitor inserted ICP always remained below 15 (DS, CN3, CN4, CN6, CN8, CN9)

• ⊕ LOC (DS, CN2, SW, CN5, CN8)

• In coma (DS)

Indicate the Location, Specific Anatomic Structure, Detail (size, depth, fracture type, head injury clinical signs and neurological deficits), and Source of all injuries indicated by official sources (or from PAR or other unofficial sources if medical records and interviewee data are unavailable.)

• Multiple punctate hemorrhages consistent with Diffuse axonal injury

[DS, CN1, CN6, CN7, CN8, CN9, CN10, EX, PX]

• ⊗ Temporal Contusion

[CN1, CN4, CN5, CN6, CN7, CN8, CN9, DO, EX, PX]

• Nonpurposeful eye movements consistent with diffuse axonal injury (CN6, CN10)

• Diffuse Swelling  
• ⊗ Cerebral hemisphere (EX)

• At discharge Pt showed evidence of ⊕ 6th nerve paresis (DS, CN10, DO)

• ⊕ hemiparesis (DS, CN6, CN7, CN10, DO)

• Decerebrate posturing noted @ scene [HP, EN, CN1, CN2, CN3, CN6, CN8, CN10]

• Pupils fixed and nonreactive (HP, EN, CN1, CN2)

• Midbrain hemorrhage, (CN8, PX)  
• shear injury  
• hemorrhage near ⊗ thalamus,  
• ⊗ internal capsule (CN1, CN4, CN5, CN8, CN9, CN10)

• No response to verbal or tactile stimuli (CN5)

• Roving eye movements (CN6)

• Responsive to pain but not commands (CN9)

• Disconjugate gaze, frequent eye deviation to ⊕ (CN9, CN10)

• ⊗ subfrontal Contusion (PX)

Final Dx: Cerebral Contusion (DS, DO)

• CHI (CN2, CN3, CN7)

• Seizure, tonic clonic movements in trauma (ER) (HP, CN1, CN3, CN8)

• Subdural hematoma small ⊗ temporal [CN1, CN4, CN6, CN7, CN8, CN9, CN10, DO, EX, PX]

• Mild ⊗ temporal subarachnoid hemorrhage (EX)

• Agonal breathing on arrival (HP, EN, CN1, CN3, CN10)

• Decreased purposeful movements (CN4)

## CAUSE OF DEATH

*Not Applicable!*

## ICD-9-CM

959.0 Facial Abrasions (FS, AR)  
 920 Temporal Contusion  
 854.00 Diffuse Axonal Injury  
 852.20 Subdural Hematoma  
 786.1 stridor  
 E814.1 MVA

(AR)

## OTHER DRUGS (GV16)

Specimen Test Type	Drug(s)	Drug Type
<input type="checkbox"/> Blood and urine tests <input type="checkbox"/> Blood test only <input type="checkbox"/> Urine test only <input type="checkbox"/> Other test <input type="checkbox"/> Unspecified		

## MEDICAL RECORD ABBREVIATIONS

Symbol	Record Type Description
A	Autopsy—medical information based upon an invasive examination of a body
ME	Medical examiner's record—where the information reported on the patient is based on a non-invasive examination of the body
AR	Admission record/summary—any medical information on this record should be considered as post-ER since it summarizes the patient's admission; these records are common in short hospitalizations and usually only contain: admission DX(s), final DX(s), and a listing of surgical treatments; ICD-9-CM codes are frequently available.
FS	Admission/discharge face sheet—face sheets are essentially the same as admission record/summaries and contain the same types of information as discussed above
DS	Discharge summary—shorten history of a patient's hospitalization highlighting the patient's major injuries; this record is often written from the perspective of its author which in many cases is a consultant
OS	Operative record—summary of a performed surgical operation often providing detailed information about a specific trauma; patients who survive the surgery are normally admitted; thus, this record is normally considered post-ER; however, if this record results from an outpatient surgery, then treat it as emergency-room related
FX	Radiographic records—taken after the patient has been admitted, or while in surgery or intensive care
FN	Patient progress notes—supplemental record containing additional nurses notes taken after the patient's admission
HP	History and physical exam—medical history and the results of the physical exam obtained by the emergency room physician assigned to the patient upon arrival at the emergency room
CN	Consultation record—consultations are in essence additional history and physical exams performed by doctors whose expertise was requested by the emergency room physician; the consultation may occur during the emergency room visit or after admission
ER	Emergency room report—where the author of this information is undefined
EN	Emergency room nurse—"nurse/complaint of" section on the emergency room report
ED	Emergency room doctor—"objective/physical exam" section plus "diagnosis and treatment" sections (i.e., doctor portion of emergency room report)
NN	Nurse notes—supplemental record containing additional notes taken by the emergency room nurse(s)
EX	Radiographic records—taken during the patients stay in the emergency room
CV	Coroner's verdict—statement of cause of death for legal specific regarding injuries; care must be exercised to ascertain the credentials of the verdict's author.
CR	Coroner's report—medical information based upon a noninvasive examination performed by a person who is not a doctor but who has the title of a coroner
ET	Emergency medical technician—report by a person who qualifies as an emergency medical services technician (EMS or EMT)
O	Other source—medical information based on an other source (e.g., newspaper, DVM—Doctor of Veterinary Medicine)
<i>SW = Social Work Consultation      DO = Discharge Orders</i>	

Hospital  
Discharge Record

Date : [REDACTED] 95  
Time : 05:39PM  
Unit :  
Rm/Bed :  
Source :

Med Rec #:  
Account #:  
Pat Type : IP  
Type : EM  
Clerk : KEYS

PATIENT INFORMATION

Name :  
AKA :  
Address :  
Bldg/Com :  
City,ST : , PA  
ZIP : [REDACTED]  
County :  
Home # :

DOB : [REDACTED] Age: 3  
Sex : M  
Race: WHITE  
SS# :  
Religion :  
Plan :  
ID # :  
Group # :

PARENT INFORMATION

Name :  
Relat : FATHER  
Home # :  
Work # :  
Name :  
Relat : MOTHER  
DOB :  
Work # :  
Name : PARENTS, ONLY  
Relat :  
Home # :

GUARANTOR INFORMATION

Name :  
DOB :  
Address :  
SS# :  
City,ST : , PA  
Zip : [REDACTED]  
Occupatn :  
Home # :  
Work # :  
Employer :  
Comments :

FAMILY PHYSICIAN

Name :  
MD Group :  
Address :  
City,ST :  
Zip :  
Phone # :  
Send Rep : Y

PEDIATRIC

REFERRING PHYSICIAN

Name : PARENTS NOT AVAILABLE,  
MD Group :  
Address : PER OUR ADMISSIONS DEP  
City,ST : [REDACTED], PA  
Zip : [REDACTED]  
Phone # :  
Send Rep : N

OTHER INVOLVED PHYSICIAN #1

Name :  
MD Group :  
Address :  
City,ST :  
Zip :  
Phone # :  
Send Rep :

OTHER INVOLVED PHYSICIAN #2

Name :  
MD Group :  
Address :  
City,ST :  
ZIP :  
Phone # :  
Send Rep :

Admit Phy: , MD  
Atten Phy: , MD  
ICD9 Code: 959.0  
Adm Dx : FACIAL TRAUMA S/P MVA

Service : NEUROSURGERY  
Service : NEUROSURGERY  
Disch Dt : [REDACTED] 95

HOSPITAL

ATTESTATION RECORD

PRINCIPAL DIAGNOSIS:

*Temporal Contusion* 920

*Subdural Hematoma* 852.20

SECONDARY DIAGNOSIS:

*Facial Abrasions* 959.0

*Stridor* 786.1

*Diffuse Axonal Injury* 854.00

COMPLICATIONS AFTER ADMISSION: *Motor Vehicle Accident* E814.1

OPERATIONS

DATE

CODE NO.

*Magnetic Resonance Imaging* [REDACTED] 88.91  
*Endotracheal Intubation* [REDACTED] 96.04  
*Mechanical Ventilation* [REDACTED] 96.71

"I CERTIFY THAT THE NARRATIVE DESCRIPTIONS OF THE PRINCIPAL AND SECONDARY DIAGNOSES AND THE MAJOR PROCEDURES PERFORMED ARE ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE."

CHART APPROVED BY \_\_\_\_\_ M.D.

# HOSPITAL

## DISCHARGE SUMMARY

PATIENT NAME: [REDACTED]	
MEDICAL RECORD #: [REDACTED]	
ADMISSION DATE: [REDACTED] 95	DISCHARGE DATE: [REDACTED] 95
ATTENDING PHYSICIAN: [REDACTED] M.D.	

### FINAL DIAGNOSIS:

Cerebral contusion.  
Facial abrasions.

### PRINCIPAL OPERATION AND PROCEDURES:

Intracranial pressure monitoring.  
Endotracheal intubation.  
Mechanical ventilation.  
MRI.  
CT scan of the head and brain.

**HISTORY OF PRESENT ILLNESS:** The patient is a 3-year-old child who was in a belted car seat facing forward in the right passenger front seat of a jaguar. His mother was driving and was alleged to have been hit by another car. The right passenger air bag deployed but the driver's side did not, which was a 200 mph impact. There was a history of loss of consciousness and the child was in a coma with multiple facial abrasions. The child was brought into the Emergency Room where after initial assessment and endotracheal intubation, the child was stabilized. At this junction, CT scan showed evidence of multiple punctate hemorrhages consistent with diffuse injury. An ICP monitor was then placed and the ICP always remained below 15.

**HOSPITAL COURSE:** MRI of the C spine was then done. The child was stabilized and showed no evidence of any spinal cord injury or bone injury. Orbital MRI and CT scan was also done.

During his hospital course, after weaning the patient from mechanical ventilator, he continued to do well and gradually showed an improvement in the level of sensorium. After he was stabilized, he was transferred to the floor where he continued to show improvement.

At the time of discharge, he was awake, would follow commands and had spontaneous eye opening. He had evidence of a left 6th nerve paresis and left hemiparesis.

### DISCHARGE MEDICATIONS:

Dilantin 90 mg p.o. b.i.d. for one week and then this is to be gradually decreased as instructed.  
Tylenol for pain.



DISPOSITION:

The patient has been transferred to [REDACTED] for physical therapy, occupational therapy, Neuro-Rehab and speech therapy.

FOLLOW UP:

Call [REDACTED] for an appointment in approximately a month or should he develop a temperature of 101.5 or if incision becomes red.

Dictated by:

/ M.D.

DD: [REDACTED] 95  
DT: [REDACTED] /95

---

Attending Physician

# Hospital

## DEPARTMENT OF RADIOLOGY

Name: AGE: 3Y M DOB: [REDACTED]  
 ACC: Exam: CT HEAD UNENHANCED on [REDACTED] 95 at 5:50 PM  
 Patient Loc. When Exam Complete: Current Patient Loc.:  
 Attending MD: Requesting MD:

Indications: EVAL WITH N. PARESIS - NEEDS IMM ORBITAL CUTS  
Diagnosis: FACIAL TRAUMA S/P MVA  
History: S/P DAI - CHI.

A CT of the head and orbits was performed with multiple axial and coronal images with magnified images of the orbits. ~~There are~~ no prior CTs available for comparison. However, comparison is made with a prior MRI of [REDACTED] 95.

Examination of the brain demonstrates multiple foci of mixed high and low attenuation scattered throughout the hemispheric white matter mostly on the right side. The largest lesions are seen in the region of the right internal capsule, right basal ganglia, and right hemispheric subcortical white matter. There is also an abnormal area of increased attenuation in the right dorsal lateral pons. These correspond to the areas of hemorrhage on the previous MRI and are consistent with diffuse axonal injury. When compared with the MRI, there has been mild increase in volume loss in the supratentorial space.

Examination of the orbits demonstrates no definite evidence of orbital fracture. There is a small soft tissue collection in the subperiosteal region of the anterior right maxillary bone which most likely represents a resolving subperiosteal hematoma. Note is made of a right nasal fracture. Note is also made of an NG tube coursing to the left nasal passage and nasopharynx.

IMPRESSION:

1. Sequellae of diffuse axonal injury as described. (see comments)
2. No evidence of orbital fracture.
3. Nasal fracture.
4. Probable subperiosteal hematoma along the right anterior maxillary bone.

## Hospital

## DEPARTMENT OF RADIOLOGY

Name: \_\_\_\_\_ AGE: 3Y M DOB: \_\_\_\_\_ M R N : \_\_\_\_\_  
 Acc: \_\_\_\_\_ Exam: X CHEST PORTABLE SINGLE VIEW on \_\_\_\_\_ 95 at 10:30 P  
 Patient Loc. When Exam Complete: \_\_\_\_\_ Current Patient Loc.: \_\_\_\_\_  
 Attending MD: \_\_\_\_\_ Requesting MD: \_\_\_\_\_

Indications: DESATURATIONS/INCREASED WOB  
Diagnosis: FACIAL TRAUMA S/P MVA  
History: S/P DAI, TRACHEA EXTUBATED [REDACTED] NOW WITH INCREASED WOB. STRIDOR

COMMENT: A single limited portable examination of the chest was obtained on 11/19/95 at 10:30 pm and compared to the prior examination from 11/14/95 at 5:50 am. There is an NG tube noted within the stomach. The lungs overall are clear. The cardiac silhouette is stable in configuration and size. The previously described subglottic narrowing of the trachea is not significantly changed. There has been no other significant interval change.

IMPRESSION:

NG tube in place. Lungs are clear. Please see comment.

## Hospital

## DEPARTMENT OF RADIOLOGY

Name: \_\_\_\_\_ AGE: 3Y M DOB: \_\_\_\_\_ M R N : \_\_\_\_\_  
 ACC: \_\_\_\_\_ Exam: X CHEST PORTABLE SINGLE VIEW on \_\_\_\_\_ 95 at 10:00 AM  
 Patient Loc. When Exam Complete: \_\_\_\_\_ Current Patient Loc.: \_\_\_\_\_  
 Attending MD: \_\_\_\_\_ Requesting MD: \_\_\_\_\_

Indications: LINE/ETT PLACEMENT  
Diagnosis: FACIAL TRAUMA S/P MVA  
History: S/P DAI, TRACHEA EXTUBATED [REDACTED], NOW WITH INCREASED WOB.STRIDOR

COMMENT: A single limited portable examination of the chest was obtained on [REDACTED] 1995, at 10:00 am, and compared to the prior examination from a day earlier at 10:30 am. A feeding tube is noted within the stomach. There continues to be slight atelectasis noted at the right base. The lungs remain clear otherwise. The cardiac silhouette is stable in configuration. The remainder of the examination appears unchanged.

IMPRESSION:

Slight atelectasis in the right base. No evidence of pneumothorax.  
Please see comments.

116A

## Hospital

### DEPARTMENT OF RADIOLOGY

Name: AGE: 3Y M M R N :  
ACC: Exam: X CHEST PORTABLE SINGLE VIEW on [REDACTED] 95 at 6:45 P  
Patient Loc. When Exam Complete: Current Patient Loc.:  
Attending MD: Requesting MD:

Diagnosis: FACIAL TRAUMA S/P MVA

A single AP view of the chest obtained on [REDACTED] 95 at 6:45 PM.  
Comparison is made with a prior study from [REDACTED] 95 taken at 6:10 AM.  
The heart is not enlarged. There is decreased subsegmental  
atelectasis in both lungs. The ET tube is in good position.

#### IMPRESSION:

Mild decrease in diffuse subsegmental atelectasis.

## Hospital

### DEPARTMENT OF RADIOLOGY

Name: AGE: 3Y M M R N :  
ACC: Exam: X AP PORTABLE SINGLE DOB: [REDACTED]  
Patient Loc. When Exam Complete: on [REDACTED] 95 at 6:45 P  
Attending MD: Current Patient Loc.:  
Requesting MD:

Indications: CHECK NG TUBE PLACEMENT  
Diagnosis: FACIAL TRAUMA S/P MVA  
History: TRAUMA STAT [REDACTED] MVA

A single AP view of the abdomen was obtained on [REDACTED] 95 at 6:45 PM.  
No prior studies are available for comparison. There is contrast  
within the abdomen. There is mild dilatation of the bowel loops.  
There is no evidence of free air. The NG tube is within the stomach.

#### IMPRESSION:

Contrast within mildly distended bowel loops.

## Hospital

### DEPARTMENT OF RADIOLOGY

Name: M R N :  
AGE: 3Y M DOB: [REDACTED]  
ACC: Exam: X CHEST PORTABLE SINGLE VIEW on [REDACTED] 95 at 5:50 AM  
Patient Loc. When Exam Complete: Current Patient Loc.:  
Attending MD: Requesting MD:

Indications: F/U POST-EXTUBATION  
Diagnosis: FACIAL TRAUMA S/P MVA  
History: TRAUMA STAT [REDACTED] MVA

COMMENT: A single AP view of the chest was obtained on [REDACTED] 95.  
Comparison is made with a prior study from [REDACTED] 95 taken at 6:45 PM.

#### IMPRESSION:

Both lungs are clear without evidence of pneumothorax.

The heart is not enlarged.

Increased colonic distention.

## Hospital

### DEPARTMENT OF RADIOLOGY

Name: M R N :  
AGE: 3Y M DOB: [REDACTED]  
ACC: Exam: X AIRWAY AP & LATERAL on [REDACTED] 95 at 10:15 AM  
Patient Loc. When Exam Complete: Current Patient Loc.:  
Attending MD: Requesting MD:

Indications: R/O SUBGLOTTIC NARROWING  
Diagnosis: FACIAL TRAUMA S/P MVA  
History: TRAUMA STAT [REDACTED] MVA STRIDOR POST EXTUBATION

HISTORY: Status post MVA, facial trauma, rule out subglottic narrowing. Stridor post-extubation.

A single limited portable examination of the airway was performed with AP and lateral films, with no prior examinations for comparison. There is an area of asymmetric subglottic narrowing of the airway on the left. This may be secondary to a granuloma or cyst from prior intubation. There does not appear to be any other significant soft tissue or bony abnormality. Would recommend further evaluation as clinically indicated.

#### IMPRESSION:

Asymmetric subglottic narrowing in the left of the airway which may be secondary to a granuloma or cyst formation from prior intubation.  
Please see comment.

## Hospital

## DEPARTMENT OF RADIOLOGY

Name: AGE: 3Y M DOB: [REDACTED]  
 Acc: Exam: MRI BRAIN on [REDACTED] 95 at 10:29 AM  
 Patient Loc. When Exam Complete: Current Patient Loc.:  
 Attending MD: Requesting MD:

Indications: F/U CONTUSIONS, DAI  
Diagnosis: FACIAL TRAUMA S/P MVA  
History: TRAUMA STAT [REDACTED] MVA

CLINICAL INFORMATION: 3-year-old male status post motor vehicle accident. Follow up contusions and DAI.

Examination was performed on a 1.5 Tesla magnet. Sagittal T1 weighted images were followed by axial T1, fast spin echo proton density and T2 weighted, and gradient echo images. For the neck, sagittal T1 and T2 weighted images were followed by axial T1 weighted images from the foramen magnum to the lung apices. This was followed by axial inversion recovery images.

There are no old films for comparison.

There is metallic susceptibility artifact obscuring examination of the right frontal lobe. However, there is a right subfrontal contusion and a right temporal contusion. The right-temporal contusion is associated with a small subdural hematoma without mass effect. There are multiple hemorrhagic shear injuries involving both the brain stem, the basal ganglia and the cortical gray-white junctions bilaterally. Specifically, there is a lesion in the right pons just anterior to the superior cerebellar peduncle. There are similar foci in the right globus pallidus, the right caudate head, and the right posterior limb of the internal capsule/globus pallidus, where there is a blood-fluid level. A similar level is seen in a right frontal gray-white junction lesion. There is minimal mass effect and no right-to-left shift or uncal herniation. The ventricles are midline and patent.

IMPRESSION:

Multiple hemorrhagic contusions, consistent with shear injury, one of which involves the right pons. Right temporal contusion with associated tiny subdural hematoma. Right subfrontal contusion.

In the spine, there is minimal reversal of the normal cervical lordotic curvature. However, the vertebral body and disk space heights are well maintained. There is no abnormal cord signal.

No abnormal signal is seen within the soft tissues. Increased signal intensity seen within the oropharynx, most likely represent inflammation or secretions.

No evidence of ligamentous injury.

# Hospital

## DEPARTMENT OF RADIOLOGY

Name: \_\_\_\_\_ AGE: 3Y M M R N : \_\_\_\_\_  
ACC: \_\_\_\_\_ Exam: CT C-SPINE UNENHANCED DOB: \_\_\_\_\_  
Patient Loc. When Exam Complete: \_\_\_\_\_ on [REDACTED] 95 at 3:29  
Attending MD: \_\_\_\_\_ Current Patient Loc.: \_\_\_\_\_  
Requesting MD: \_\_\_\_\_

superficial contusions. In the right posterior temporal lobe there are similar areas of hyperdensity which may be contusion but possibly could represent a small subdural fluid collection. A small amount of subarachnoid blood is seen more anteriorly involving the right temporal lobe.

At this time there is no significant herniation. The basal cisterns remain open. No apparent right-to-left shift is seen.

No underlying calvarial fracture is seen.

The cervical spine was imaged from the skull base to the C3 vertebral body. There is no evidence of fracture, subluxation or soft tissue mass.

# Hospital

PX ↓

## DEPARTMENT OF RADIOLOGY

Name: \_\_\_\_\_ AGE: 3Y M M R N : \_\_\_\_\_  
ACC: \_\_\_\_\_ Exam: X UPPER EXTREMITY LEFT DOB: \_\_\_\_\_  
Patient Loc. When Exam Complete: \_\_\_\_\_ on [REDACTED] 95 at 5:50  
Attending MD: \_\_\_\_\_ Current Patient Loc.: \_\_\_\_\_  
Requesting MD: \_\_\_\_\_

Indications: R/O FRACTURE RIGHT HAND/WRIST  
Diagnosis: FACIAL TRAUMA S/P MVA  
History: TRAUMA STAT [REDACTED] MVA

AP and lateral views of the left wrist on [REDACTED] 95 are limited by overlying radiopaque catheter material. There is no definite evidence of a distal radial or ulnar fracture.

# Hospital

## DEPARTMENT OF RADIOLOGY

Name: \_\_\_\_\_ AGE: 3Y M M R N : \_\_\_\_\_  
ACC: \_\_\_\_\_ Exam: X CHEST PORTABLE SINGLE VIEW DOB: \_\_\_\_\_  
Patient Loc. When Exam Complete: \_\_\_\_\_ on [REDACTED] 95 at 6:10  
Attending MD: \_\_\_\_\_ Current Patient Loc.: \_\_\_\_\_  
Requesting MD: \_\_\_\_\_

Indications: LINE/ETT PLACEMENT  
Diagnosis: FACIAL TRAUMA S/P MVA  
History: TRAUMA STAT [REDACTED] MVA

Single AP view of the chest on [REDACTED] 95 at 6:10 am was compared to [REDACTED] 95. The nasogastric tube has been advanced; however, the tip continues to lie in the distal esophagus. Central line in the IVC and endotracheal tube in satisfactory position. There is hazy opacity in both lower lung fields; however, it appears markedly improved compared to prior study. The heart size is normal. There are biapical pleural effusions.

118A

## Hospital

## DEPARTMENT OF RADIOLOGY

Name: AGE: 3Y M DOB: [REDACTED]  
 ACC: Exam: CT C-SPINE UNENHANCED on [REDACTED] 95 at 3:29 PM  
 Patient Loc. When Exam Complete: Current Patient Loc.:  
 Attending MD: Requesting MD:

Acc: Requestor: [REDACTED] MD  
CT HEAD UNENHANCED on [REDACTED] 95 at 3:29 PM  
Indications: TRAUMA STAT: [REDACTED]  
History: TRAUMA STAT [REDACTED] MVA

DISCUSSION: A CT scan of the head without contrast and an unenhanced CT scan of the upper cervical spine is performed in this 3 year-old who has been involved in trauma. No prior studies are available for comparison.

Nonenhanced images of the brain were acquired using 5 mm contiguous transaxial images through the entirety of the brain. Additionally, 2 mm contiguous transaxial images were obtained from the skull base through the C3 vertebral body.

IMPRESSION:

There are several abnormal areas within the brain indicating traumatic injury including marked swelling of the right hemisphere and effacement of the sylvian fissure, hyperdense shear injury in the genu of internal capsule on the right as well as a mild degree of right temporal subarachnoid hemorrhage. High density is also seen around the convexity over the right parietal lobe which could be superficial contusion. Additionally, in the right posterior temporal lobe there is high density which could be superficial contusion or possibly subdural blood.

At this time there is no evidence of herniation.

No underlying skull fractures are seen.

The upper cervical spine from the skull base to the C3 vertebral body shows no abnormality.

COMMENT: Unenhanced images of the brain demonstrate multiple abnormalities indicative of significant brain injury. There is diffuse swelling of the right cerebral hemisphere with effacement of the sylvian fissure and some loss of the normal gray-white matter distinction over the convexity. There is 3 mm rounded hyperdense area in the genu of the internal capsule on the right side consistent with shear injury. Also, there are subtle scattered areas of hyperdensity over the parietal genu at the level of the convexity. These may be



## Hospital

## DEPARTMENT OF RADIOLOGY

Name: AGE: 3Y M M R N :  
Acc: Exam: CT PELVIS ENHANCED DOB: on 09/09/95 at 3:29 PM  
Patient Loc. When Exam Complete: Current Patient Loc.:  
Attending MD: Requesting MD:

Acc: Requestor: MD  
CT ABDOMEN ENHANCED on [REDACTED] 95 at 3:29 PM  
Indications: TRAUMA STAT: [REDACTED]  
History: TRAUMA STAT [REDACTED] MVA

HISTORY: 3-year-old male status post MVA.

COMMENT: Axial images were obtained through the abdomen and pelvis using spiral technique with 8 mm slice thickness after the administration of oral and approximately 30 ccs of Omnipaque 300.

Subsegmental atelectasis is present in the bibasilar region. There is no pleural effusion. The liver, spleen and pancreas are normal in size, shape, and configuration. There is no free intraperitoneal fluid. The kidneys and adrenal glands are normal without evidence of hydronephrosis. There is no evidence of free intraperitoneal air. The bony elements are unremarkable. The bladder is normal with a Foley catheter in place.

IMPRESSION:

1. Bibasilar subsegmental atelectasis without evidence of pleural effusion.
2. No visceral or vascular injury identified. There is no evidence of free intraperitoneal air or free intraperitoneal fluid.

## Hospital

## DEPARTMENT OF RADIOLOGY

Name: \_\_\_\_\_ AGE: 3Y M DOB: [REDACTED]  
 Acc: \_\_\_\_\_ Exam: X MANDIBLE on [REDACTED]/95 at 11:30 A  
 Patient Loc. When Exam Complete: \_\_\_\_\_ Current Patient Loc. \_\_\_\_\_  
 Attending MD: \_\_\_\_\_ Requesting MD: \_\_\_\_\_

Diagnosis: FACIAL TRAUMA S/P MVA

Three views of the mandible are obtained on ~~XXXX~~ 95. No prior study is available for comparison.

IMPRESSION:

No evidence of fracture or dislocation.

## Hospital

## DEPARTMENT OF RADIOLOGY

Name: \_\_\_\_\_ AGE: 3Y M M R N : \_\_\_\_\_  
 ACC: \_\_\_\_\_ DOB: \_\_\_\_\_  
 Exam: X C-SPINE FOR TRAUMA on \_\_\_\_\_ 95 at 2:35 PM  
 Patient Loc. When Exam Complete: \_\_\_\_\_ Current Patient Loc.: \_\_\_\_\_  
 Attending MD: \_\_\_\_\_ Requesting MD: \_\_\_\_\_

Indications: MVA...TRAUMA STAT:..  
History: TRAUMA STAT [REDACTED]

A lateral and AP view of the cervical spine were obtained at 2:15 PM on October [REDACTED] 1995 with no prior views of the area available for comparison.

C1 and C2 are not well visualized because of overlying artifact; therefore, a CAT scan of the area is suggested. C3 through C7 are visualized and appear normal without evidence of fracture. The soft tissues of the neck appear normal. A nasogastric tube and endotracheal tube are in place.

IMPRESSION:

No evidence of fracture from C3 through C7. C1 and C2 not well visualized. CT recommended.

## Hospital

## DEPARTMENT OF RADIOLOGY

Name: \_\_\_\_\_ AGE: 3Y M DOB: \_\_\_\_\_ M R N : \_\_\_\_\_  
 Acc: \_\_\_\_\_ Exam: X CHEST PORTABLE SINGLE VIEW on \_\_\_\_\_ 195 at 2:35 PM  
 Patient Loc. When Exam Complete: \_\_\_\_\_ Current Patient Loc.: \_\_\_\_\_  
 Attending MD: \_\_\_\_\_ Requesting MD: \_\_\_\_\_

Indications: MVA... TRAUMA STAT:  
History: TRAUMA STAT [REDACTED]

A single AP, supine view of the chest was obtained at 2:15 PM on [REDACTED] 1995 with no prior chest films available for comparison.

The endotracheal tube is at the lower end plate of T3, still above the carina. There is a nasogastric tube in place which is coiled several times in the stomach.

The lungs are clear with no evidence of infiltrate or effusion. The cardiac silhouette appears normal. There is no evidence of fracture within the ribs or other bony structures on the films.

IMPRESSION:

No evidence of fracture. ET tube in good position.

## Hospital

## DEPARTMENT OF RADIOLOGY

Name: \_\_\_\_\_ AGE: 3Y M M R N : \_\_\_\_\_  
 Acc: \_\_\_\_\_ Exam: X AP PORTABLE SINGLE DOB: \_\_\_\_\_  
 Patient Loc. When Exam Complete: \_\_\_\_\_ on \_\_\_\_\_ '95 at 2:35 PM  
 Attending MD: \_\_\_\_\_ Current Patient Loc.: \_\_\_\_\_  
 Requesting MD: \_\_\_\_\_

Indications: MVA...TRAUMA STAT:  
History: TRAUMA STAT [REDACTED]

COMMENT: A single view of the abdomen in the supine position was obtained at 2:15 PM on [REDACTED] 1995 with no prior abdominal films available for comparison.

There is a nasogastric tube which is coiled several times in the stomach. The bowel gas pattern is normal. There is no evidence of fracture. There is no evidence of organomegaly or soft tissue mass.

IMPRESSION:

Normal abdomen.

# Hospital

## Discharge Order & Discharge Note

DO

(Discharge Order will not be carried out unless the entire form is completed.)

### Physician's Order

Date: 7/15 Time: 12:30pm Attending Physician at Time of Discharge:

### Physician's Discharge Note

#### 1. Diagnoses & Complications - No Abbreviations

- CEREBRAL CONTUSION
- FACIAL ABRASIONS

#### 2. Procedures & Dates - If none, write none - No Abbreviations

- INTRACRANIAL PRESSURE MONITOR
- ENDOTRACHEAL INTUBATION AND VENT.
- MRI
- CT SCAN / Brain / ORBIT

#### 3. Relevant Physical Examination findings at Discharge

- AWAKE, SPONTANEOUS EYE OPENING
- FOLLOW COMMANDS
- RIGHT NR PARESIS Paresis VE nerve
- LEFT HEMIPARESIS

#### 4. Discharge Instructions (If not applicable, write N/A)

##### Medications:

- DILANTIN 90mg PO BID x 1 week
- KEN 90mg PO QHS x 1 week & then stop
- Hydrocodone for pain.

- Complete (f.m.)
- Review Safety Issues
- Diet: Begin oral feeds and wear
- Activity/Bath: from NG tube
- Return to School/Day Care: 0
- Treatments:
- PT/OT
- Speech
- Neuro- rehab.

##### Follow-up appointments:

Call [redacted] for appointment

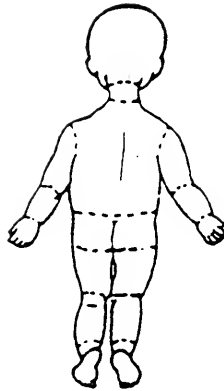
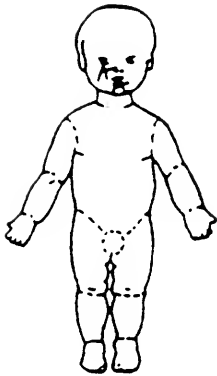
Removal of

- Call the doctor if:
- temp > 101°F. Incontinence
- Discharge
- SEIZURES

MD

Resident to dictate discharge summary:

Physician's Signature



A = abrasion  
B = burn  
C = contusion  
L = laceration/stab wound

## SECONDARY DATA

### Radiology

CXR ⊖ C-Spine Abt + lat ⊖ Abd/Pelvis ⊖

Extremities \_\_\_\_\_ CT Head Ct-2 Small intraparenchymal hemorrhage

CT Abdomen ⊖ Other: Ⓢ IC + temporal lobe + shift

### Laboratory

CBC 20.1  
35 < 35

Fluid Balance 140 / 103 / 12 < 106  
3.1 / 18 / 0.4

PT/PTT \_\_\_\_\_ Amy/Lip 38 Liver profile ALT 30 AD-238  
AST 54 TD 65

Tox Screen (urine) \_\_\_\_\_ (serum) \_\_\_\_\_ UA dip ⊕ GET-15

Other \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_ 1-2 RBC dip ⊖ bld

### Trauma Assessment, Plan & Rehab (refer to trauma order set for assistance)

CHI  
- Intubated, hyperventilate  
mannitol + dilanti  
- ICP monitor by neurosurgery  
Abrasions to face - polysporin  
Mandible fx - OMFS consult  
Wrist Xray Ⓢ Oral Maxilla Facial Surgery

If no rehab needed, check here ☐

Resident Signature \_\_\_\_\_ Attending Signature \_\_\_\_\_

12/1A

# CONSULTATION FORM

Patient's Name

Patient MR No.

Unit

Date

CN 10

9/5 7:50 AM

From: Neurosurg / Pediatrics Dr.

To: Ophthel

Reason for Consultation: ? gaze palsy evaluation

Consultation: Date: 9/5 7:10 AM 3yo Hispanic ♂ w/ MVA                      @ 14 days old.                       
 @ subdural                      present in apical brain, descriptively positive. T2 & T1 - normal, hyperintense, but  
 for T1CP. Diffuse axonal injury. When present. In limited to extracerebral info.  
 Review of chart reveals full ophthalmic exam                      & significant findings of @ periorbital edema,  
 ecchymosis; non-motile eye movements & recommendation of orbital CT to                     . Subsequent  
 note from several sources note dysconjugate gaze & occasional full motility but is preference  
 to @ gaze. % Dr.                      from                      <sup>probable</sup> abduction OD presumably 2° CN VI palsy w/ T1CP/  
 diencephalic injury.

It seen & mother. She confirmed that she has witnessed full motility OD. This may  
 pt noted <sup>to have</sup> abduction defect OD & @ esotropia in 170 degrees. At E+P and reaches  
 for penlight.

This almost certainly represents a neurological deficit [ @ CN VI palsy, etc ] given  
 % DAI, T1CP, @ subdural bleed corroborated by lack of restriction by observation of full motility.  
 Orbital CT recommended                      or not performed. Mother wishes to proceed - orbital CT  
 to be absolutely certain there is no orbital pathology as well as any other facial fr.

( Recommend axial + coronal brain cuts of orbit and  
 any facial series ONFS feels warranted. )

Signature

# CONSULTATION FORM

CN 8

Patient's Name \_\_\_\_\_

Patient MR No. \_\_\_\_\_

Unit \_\_\_\_\_

Date 11/95

From: TRAUMA

To: SPEECH/NEUROREHAB

Trumatic Brain Injury

Reason for Consultation: 3yo c TBI + facial trauma 2° MVA on [redacted]

Hx: Pt is a 3yr 2mo Hispanic male (Spanish, ~~English~~) He was restrained in car seat on passenger side (mom = driver). Slow speed, head-on collision (~35mph) caused airbag deployment. Pt c LOC, decerebrate posturing. seizure → Tonic/Clonic szs upon arrival. Intubated, ventilated, ICP 6.4

Consultation: Date: HEAD CT → (A) temp contusion, (R) SDH, (R) internal capsule bleed,  
basilar skull fx. MRI → Diffuse Axonal Injury Also → mandibular fx?  
DAI, midbrain hemorrhage. facial trauma/burn

Soc Hx: Parents are bilingual, but have exposed pt to Spanish only. 5yr-sister is bilingual. Parents planned to enroll pt in Montessori Kgarten next year. Father has older children from previous marriage.

DEV'T Hx: Spanish speaking only. Per parents - knew colors, shapes, letter identification - Spoke in full sentences. Loves dinosaurs. Normal speech/language dev't.

EVAL: 11/95

Extubated 11/95 - still on O<sub>2</sub>. Pt c subglottic edema but mobile vocal folds (per ERL) Spont eye opening. Localized responses on R > L. Not following commands or identifying people/objects c eye gaze. No visual tracking.

Full eval. of cognitive status/responsiveness  
Rancho II-III.

Signature \_\_\_\_\_

# CONSULTATION FORM

CN 7

Patient's Name \_\_\_\_\_

Patient MR No. \_\_\_\_\_

Unit \_\_\_\_\_

Date 19.5.17:30

**From:**

**To:**

Reason for Consultation:

Reason for Consultation: 3yo ♂ s/p MVA - retained. sp. CHI for DII (w/abs. knee cont.)  
Intubated  
 O.S.D.H., intubated in field 4.5 hrs ± suff. multiple facial abrasions No 2 penetrating  
& comminuted multiple facial lacerations possible ally Lateral Abdom  
 It estimates 4.5. it noted late T.WOR - retraction + stomach  
protruding, partially responsive + nauseous epi + disaster  
Vital signs + oxygenate well ~ 0.40m7.  
 Consultation: Date: \_\_\_\_\_

Amid @ INKOA 2mm WTD Mal - Del. TPN, Decodon 2.5g 6' 14  
gust / clunde / ZANTAC

seen moving side responsive to commands  
P4 room, moving @ red spontaneously - not responsive to commands  
double facial abrasions @ periorbital ecchymosis facial contusion  
No ant emesis - all d/c. color ok Neck nuchal rigidity Quebrach. Stern

NPL NP-④ secretions. mucosal folds. OP-④ secretion - MAM. Glac  
hypopharynx clear larynx - Peduncle / PVC + posterior glottic region.  
IVL moderate Bilaterally open well. ④ of granules some post  
glottic region. mucous edema

Imp - Post Intubation edema/Trauma  
Res - Humidified O<sub>2</sub>; Breathing by NW.

Cont Barore  
If condition persists the pH probe is a reflex  
Lat/AC soft tissue injury - is a subtle process

$$\mathcal{D}(wDr)$$

Signature \_\_\_\_\_

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123A



# CONSULTATION FORM

CN9

Patient's Name

Patient MR No.

Unit

Date

① of ②

95

From: 760m Peds E R.

To: Neurosurgery

Reason for Consultation: Pt is a 3 1/2 yr old slip MVA, air bag injury. Pt intubated at scene and transported to [redacted]. Pt sustained diffuse axonal injury, ① int capral hemorrhage, ② subdural hematoma, ③ cerebral contusion. ICP monitor placed on occipital and d/c'd [redacted]. Extubated Consultation: Date: on [redacted] to 353 by face mask. Complicated post extub coarse resp. epi, salivaceous for obstruct/hypotonia. Now wearing soft collar. Transferred to Floor for further management.

PMH: ① prior hosp ② prior surg

On no meds PTA Allg: NKDA

Immun: UTD PMO: [redacted] [redacted], [redacted] Pds

PE: 3 1/2 yr W8 in bed. Responsive to pain but does not respond to commands. In NDD.

VS: T<sub>a</sub> 38.3 T<sub>e</sub> 37.9 P 129-138 R 28 BP 106-123/64-77

HEENT: ICP monitor site ⑤ sutures in place, ⑥ dry, ⑦ d/c at site, PEARL; unable to assess EOMI; frequent eye deviation to ⑧ ⑤ coarse saccadic eye: ⑨ H reflex ⑩ mob. ⑪ nose: ⑫ d/c throat: M/M/M; numerous abrasions over face, chin

Signature

MD

CHART COPY

# CONSULTATION FORM

Patient's Name

Patient MR No.

Unit

Date

(2 of 2)

From: Neurology

To: Gen Med

Reason for Consultation: PE (cont): CV: RR R E <sup>2</sup> H Sys murmur at 2 LSS

lungs: clear but coarse E transmission of upper airway  
sounds, 97% sat on RA; RR 28

abd: S/NT/ND/OBS GU: <sup>Normal</sup> nl or, testes nl, Tanner I

ext: well perfused. Neuro: responds to pain but

Consultation: Date: <sup>frequent</sup> not com mends; disconjugate gaze; freq eye  
deviation to ①; unable to answer to ①; moves ②UL, ②UL  
spont. i move on ① to pain only

Labs: Phenytoin 3.7

10/1/84 Resp OK ① 10/1/84 Temp ① 10/1/84 Blood art h/o ① 10/1/84 Urine ①

10/1/84 Urine ① 10/1/84 CVT h/o ① 10/1/84 Blood ① 10/1/84 Blood ①

A: 3'2 yr previously healthy or most 8d s/p MVA, injury 2°  
air bag.

Rec ① If pt has temp > 38°, obtain blood cx, urine cx, CXR

② Obtain post-bolus phenytoin level

③ Nutrition following - would give pt 100 kcal/kg/day for  
caloric intake. Please see Nutr. note of 10/2 for details

④ Rehab - OT, PT following. PT would benefit  
significantly from intensive rehab therapy at

⑤ Hips - pt quiescent to ⑤ hip flexion. Consider films  
of ⑤ hip if not prev obtained

Signature

MP

## CONSULTATION FORM

Patient's Name \_\_\_\_\_

Patient MR No. \_\_\_\_\_

Unit \_\_\_\_\_

Date \_\_\_\_\_

page 2

From: \_\_\_\_\_

To: \_\_\_\_\_

Reason for Consultation: \_\_\_\_\_

Imp - Bilateral periorbital ecchymoses & edema - r/o basilar skull fracture

(2) Ocular exam - finds healthy retina

Consultation: Date: \_\_\_\_\_ non-purposeful eye movements -

consistent w/ diffuse axonal injury

- may improve as condition improves  
reconsult as needed

(3) Rec CT of orbits w/ 1mm axial & coronal views to evaluate for orbital fx

- needs repeat motility exam when more aware / awake

Call w/ questions

Signature \_\_\_\_\_

# CONSULTATION FORM

CN6

Patient's Name \_\_\_\_\_

Patient MR No. \_\_\_\_\_

Unit P220

Date 10/1/95

From: Trauma

To: Ophthalmology Hispanic mg. cl

Reason for Consultation: 3 1/2 yr old s/p MVA front cont @ gir bag dep  
decerebrate posturing  
intubated, I/P monitored initially  
? basilar skull fr, rt subdural, rt temporal contusion  
mandible fr - rt temporal contusion - diffuse axonal inj  
hemiparesis

Consultation: Date: 12

Pt just extracted

$V \begin{matrix} \nearrow \phi F_{\perp F} \\ \searrow \phi F_{\perp F} \end{matrix} \phi \text{flinch to light} \quad T \begin{matrix} \nearrow \text{re } F_{\perp F} \\ \searrow \text{re } F_{\perp F} \end{matrix}$

circ over fac

Motility - rolling eye movements  $\ominus$  nystagmus  
 $\oplus$  "saccades"

Bilateral periorbital ~~ec~~chymosis + <sup>edema</sup> swelling

Step-offs - but ↑ energy makes it a difficult terrain

PLE

AFE: C:D 0.3

LL - edema + ecchymosis a

maula-ne light reflex

S/L - quiet w

## Theme Emasses

K-clear

VP-ul petra! flat

At former @ hyphema grossly Imp:

Dr-R grossly

lens - clear

See Page 2

Signature \_\_\_\_\_

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125H

# CONSULTATION FORM

Patient's Name

Patient MR No.

Ward

PICA

Date

11/15/95

pg 2 of 2

From: OT(amt)

3) Primary caregivers will be educated in ROM exercises and

Reason for Consultation: grading environmental stimulation

4) Monitor [redacted] for (B) UE resting hand splints and provide as needed

Consultation: Date

# CONSULTATION FORM

**Patient's Name**

**Patient MR No.**

Ward

**Date**

PICA

95

pg 10f2

**From:**

MD

To:

# Occupational Therapy

**Reason for Consultation:**

## Evaluation / Treatment

**Consultation:    Date:**

Date:                     95                    

Brief History - [REDACTED] is a 3yo male involved in a MVA. He was restrained in a car seat on the passenger side of the front seat. Another car ran a stop sign and collided w/ car. Air bag deployed (?) while he was seated prior to air bag deployment. EMTs removed him from car and waited for help. Ct-scan = (R) temporal contusion, (R) internal capsule bleed.

~~Afferent~~: Red face edema, @ <sup>eyes</sup> increased and sunken orbit, facial abrasions oozing blood, intubated, IV right hand, @ UE femoral line ICP Bolt @ frontal region. No response to verbal/tactile stim.  
Inconsistent flexor/extensor patterns demonstrated @ UE PROM WNL

Plan: [REDACTED] will be seen to work for the following goals:

LTG

4) Continue to monitor state of arousal/alertness and make appropriate recommendations/goals as needed.

2) well maintain & increase (b) VE ROM and strength through ROM increase

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σπρλ

126A

## CONSULTATION FORM

Patient's Name \_\_\_\_\_

Patient MR No. \_\_\_\_\_

Unit \_\_\_\_\_

Date \_\_\_\_\_

pg 2062

From: NRS

To: PT

(cont)

Reason for Consultation: (B) LE 2 inhibitory techniques. (B) pre-fab MAPO's issued and wearing schedule posted (2° ON, 1° OFF) to maintain (B) ankle DF WNL and to ↓ tone. Pt would greatly benefit from PT for following goals:

- 1) [REDACTED] will maintain full PROM all 4 extremities
- 2) [REDACTED] will tolerate PROM 5 TICP, ↑HR or ↓SaO<sub>2</sub>
- 3) [REDACTED] will tolerate (B) MAPO's 2° ON 1° OFF.
- 4) Family (I) in bedside stretching + positioning program.

Plan: See 5-6x / wk for PROM and stimulation / following commands to ↑ awareness.

Thank you —

+PT

Signature \_\_\_\_\_

# CONSULTATION FORM

CN4

Patient's Name \_\_\_\_\_

Patient MR No. \_\_\_\_\_

Unit \_\_\_\_\_

Date \_\_\_\_\_ 195

pg 1 of 2

From: AER

To: PT

Reason for Consultation: consult/treatment

History: Pt is a 3yo <sup>hispanic</sup> involved in a MVA. Pt was a restrained front seat passenger in his mom's car when the car was struck on the passenger side. Dx: mandible fx, @ SDH, @ temporal contusion and @ internal capsule bleed. GCS 6

Consultation: Date: \_\_\_\_\_

[5] Mom at bedside, excellent historian and very involved in care.

[0] observations: Supine in bed, orally intubated, IV @ hand, bolt, catheter, facial abrasions, Ø hard collar, eyes black + blue and swollen shut. ICP 5 @ 2 periods of ICP 11 but returned back to 6-8 within 1 min. Not following commands. Moving @ LE and UE in fln/ext mvmts, grasping @ hand. Positive support rxn note [B] LE touch to bottom of foot.

Tone: ↑ ext tone [B] LE but ↓ verbal cues and inhibition techniques moving passively to hip + knee fln + ankle DF [B]. Tone [R] > [L].

ROM: PROM WNL [B] (↑ facil/inhibition tech.) LE, UE NT

[A] 3yo hispanic ♂ s/p MVA presenting ↓ purposeful mvmt, ↑ ext tone [R] > [L] UE and LE, ↓ awareness, PROM WNL

Signature \_\_\_\_\_, PT

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127H



# CONSULTATION FORM

Patient's Name

Patient MR No.

Unit

Date

95

Traumatic brain injury

From: Social Work  
To: Trauma

Reason for Consultation: questions. She is fearful - is aware of severity of TBI. She reports husband's relative had a 3yo & died from TBI/MVA. Mo. is <sup>uneasy</sup> in residence, she says, + was focused on who would be "coordinating" [redacted] care. Provided support + explanation around this. (Mo did speak to Dr. [redacted]).

Consultation Date: Fa is clearly angry + Mo. (terse, abrupt, a physical contact) but v. gracious + stuff once roles were explained. Will need to monitor this interaction as well as AOB.

Although neither parent is reacting abnormally to this trauma, and parental conflict can be expected, SW may be able to help exploration + appropriate expression of feelings.

Plan: Parents oriented to ICU

Mo signed up to stay in laing.

SW to follow.

UW.

Signature

# CONSULTATION FORM

SW

Patient's Name

Patient MR No.

Unit

Date

95

From: Social Work

To: Trauma

Reason for Consultation: 34yo Hispanic ♂ Plan to [redacted] from [redacted] 4p  
low speed crash. Pt was restrained in car seat in front seat.  
Mo was driver. Mo reports hitting a car that ran a stop sign. Air bag  
deployed + struck [redacted] @ Loc Mo. uninjured. Mo arrived - police  
+ was given info by peds + neurosurg. Mo contacted Fa who

Consultation Date: arrived from work in [redacted]. He asked detailed  
qs of neurosurg. Fa declined info from CNS indicating he did  
not want to "theorize" - would rather "wait + see". Fa noted to have  
A&B. Fa did not offer comfort to Mo. He was curt when questioned  
her re: accident. Per Mo, she + [redacted] went for a drive - of intended  
destruction. Fa says he was told she left home in a hurry.

Soc Hx: Mo is from Cuba; Fa from Ecuador - both raised in US + are  
bilingual. [redacted] speaks Spanish only. Sister [redacted] (15) is bilingual +  
is home i MGP's who are visitors from Florida. Mo did not explain  
full degree of severity of injuries to MGP's fearing they upset or  
impact them 2° their age + high BP. Fa is employed as a  
contract engineer. Mo plans to enroll [redacted] in Montessori  
in Feb 94. No hx signif. illness/trauma in past [redacted]

Peds. Fa has 2 kids (14 + 20) from previous marriage

Imp: Mo remains composed + seems to be asking informed

Signature

4/95

# CONSULTATION FORM

CN 3

Patient's Name

Patient MR No.

Unit

Date

PCU

1/5/91

From: Trauma

To: OMS [Oral Maxillary Facial Surgery]

Reason for Consultation: Facial FX - Free Flap  
Mandible

Consultation: Date: 1/5/91 6:00 pm

3yo restrained passenger in MVA @ 35 mph presented  
to ED intubated agonal, & 2 debride posturing  
Tonic clonic seizure in ER per trauma nurse.  
Now has CHI & h/r @ ICP=7. C-spine clearing  
R/O collar on. GCS 3 on arrival.

Meds - ASA, Vecuronium

NKDA

86, 20, 108/54, ETT @ Vc

collar

PE - D.H. = ETT + C/H

NC/AT = ? Nose, Chin

NC/AT, Mult. Abrasions

Airway, Throat?

Sclera non-injected Pupils not equal.

(-) step off or creases on 2x9 Ach/Ma  
C/SF for - end of Battle's Sign

Signature

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1/2

# CONSULTATION FORM

Patient's Name

Patient MR No.

Date

PICU

11/9/17

From: TRAUMA

To: OMFS

Reason for Consultation: MANDIBLE FX

Consultation: Date:

PE (cont)

Mandible not eval TH to ETT/collar  
will ELU p C-S cleared  
Occlusion unable to eval evaluate

CT Scan will see it initial

Scan has mandible  
seen had branch cuts. Will

prob req three cuts coronal & Axial  
at face prior to ORIF ← Open reduction + internal fixation

- A/P ① will follow & re-eval PE p collar d/c  
② CT scan to elucidate Fracture  
③ R to OR if req p final PE  
& CT scan & when clinically cleared STABLE per TRAUMA

Pt Seen & Examined  
At-see.

2/2

Signature

DM

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129A

# CONSULTATION FORM

CN2

Patient's Name

Patient MR No.

Unit

Date

From:

To:

Reason for Consultation:

CHI - MVA

Consultation: Date:

1/25

3yo passenger in car (restrained, front seat, moderate speed) hit by deployed airbag w/ LOC, posturing at scene - transported by [redacted], intubated in trauma bay. No significant pain response as per parameters.

Exam: (Post intubation neck)

Apals 2mm NR or (brisk) hit head.

Head Atraumatic hit face w/ edema/bruise lower max/mangle  
? loose mandible.

Significant hemorrhage in oropharynx as well

IR in trauma bay: HR variable 47-90 SBP 80-110

ECG: 19m/10kg Monitor now IV Push

OCT PRAP.

Signature

# CONSULTATION FORM

CN 1

Patient's Name

Patient MR No.

Unit

PICA

Date

95

-15 kg

From: Trauma & Dr

To: CCM & Dr

Reason for Consultation: 3 yr old ♂ sitting in passenger seat in car seat - restrained - while car was travelling 35 mph - hit another car air bag deployed - he also hit the dashboard removed from car by mom Trachea intubated in the field (succinylcholine & vecuronium) & a 4.5 cuffed ETT. Also had decelerate

Consultation: Date: posturing noted. In ED had LUE & LLE tonic clonic mvts Tx'd & mannitol 1 gm/kg + vecuronium 0.2 mg/kg exam

facial burns around nose & mouth. star clear rhinorrhea @ nares orally intubated unstable mandible bilat pupils 2mm NR equal BS RRR S1S2 φm abdomen soft NTND tanner 1 ♂ testes ↓↓ rectal no tone heme @ (paralyzed & vec) no neuro exam 2: to vec

④ wrist abnormality

146	103	12	alb 4.1	+bili 0.5	UA 1.025	b.s	tr ketones
DATA 3.1	18	0.4	ALT 30	amylase 38	1+ prot	1-2 rbc	3-5 wbc
20.7	12.1	35	AST 54	GGT 15			

HEAD CT R temporal contusion

C1-C2 φ abnormalities

CXR φ infiltrate ETT T3-T4

Small R SDH  
Near R thalamus bleed

Principal Dx: R temporal contusion  
→ DAI

PLAN D5NS + KCl maintenance

NS con

MSP: none

Diffuse Axonal Injury

R radial A line

hyperosmolar therapy

DMF cor

1st Additional: R temporal contusion

L femoral v line

hyperventilation

dilanti

OSF neuro failure existing

abgs - Osm Q2

Signature

MD

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130A

HOSPITAL  
PROGRESS RECORD

Date & Time

~~1/15~~ 1/15 PC 2 AN E Trauma Surgery

Pt is a 340 ♂ sitting in passenger seat in car seat (restrained) travelling 35 mph and hit another automobile. Air bag deployed. Pt. was removed from car by his mother. When EMS arrived at field, pt had agonal breathing, and <sup>was</sup> ~~was~~ <sup>then</sup> intubated & 4-5 cuffed ETT following succinylcholine and vecuronium. At that time, decerebrate posturing was noted. Pt transported to ED via helicopter. IN ED LVE - LVE +/C moments noted. Tx'd w/ vecuronium and morphine 1 gm/kg. Transported to CT scan then admitted to RICA.

PE T 37° P 96 R 20 BP 111/48 <sup>weight estimated</sup> Wt est 15 kg

Cen - paralyzed and sedated

HEENT - mult facial burns on nose, cheeks, jaw. Unstable mandible  
pupils 2mm (S) NR, clear rhinorrhea from (S) nares

Neck - in hard collar

Chest - Clear BS, equal (S)

Heart - RRR QW

Abd - BS NTND soft

NTND  
Nontender, Nondistended

GU - Tanner I ♂ testes 4L

Rectal - No tone, none (S)

Ext - (L) wrist & edema, flaccid

Neuro - Defused as paralyzed on rec

EMERGENCY DEPARTMENT RECORD - Page 1

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[illegible]

CERTIFY THAT I UNDERSTAND THE INSTRUCTIONS GIVEN TO ME

PARENT/LEGAL GUARDIAN

NAME & SIGNATURE

**ATTENDING PHYSICIAN**

131A



**Hospital  
TRAUMA HISTORY &  
PHYSICAL EVALUATION**

(Please Print)

Date: 1/15/95 Time: 2:30pm

ER Trauma Stat                      Helo (service)                      Name                     

Attending:                      Trauma #                     

Age: 3yrs Sex: ♂ Weight: 15kg

**HISTORY**

Please include mechanism & on site treatments, for inter-hospital transfers include name of hospital, diagnostic studies, treatments, and reason(s) for transfer.

3yo ♂ restrained in  
safety seat in front seat of  
car & frontal collision @ 35mph  
passenger-side airbag deployed.  
Agonal @ scene, decedmate  
posturing.

Path: ②

## PRIMARY SURVEY

Airway ETT Breathing ✓ Circulation ✓  
(check ✓ if normal, specify abnormalities below)

Eyes 1 Verbal 1 Motor 1 = GCS 3

BP: 91/58 HR: 75 RR: 20 Temp: 35

Pulse Ox: 100 % Trauma Score       

## COMMENTS - Resuscitation phase &amp; Emergency Treatments

IO placed, Labs sent  
 12F OG  
 8F Foley  
 cervical collar placed. — pharmacologically  
 intubated & pharmacologically paralyzed,  
 T-C seizure in trauma bay.

## SECONDARY SURVEY free floating mandible

HEENT (include TM's) Abnormal upper lip, chin, free floating mandible,  
 TM's OK, CSF rhinorrhea @ nostril, pupils 3mm - non reactive  
 Maxillofacial rhinorrhea non reactive  
 free floating mandible

Neck: (anterior and posterior)  
 collar in place, no step offs, trachea midline

Chest/Lungs/Cardiovascular  
 Cw - atraumatic amp - clear cor - RMC

Abdomen & Pelvis (include rectal) Nondistended Pelvis stable Rectal blood  
 abd soft, RT, LARS, bowel - stable Rectal - long @  
 Stone

Back  
 no tenderness, step offs & step offs

Extremities (skeletal & vascular) Nontender atraumatic ? deformity  
 palpable radial, femoral, deep pulses bilaterally  
 Neurologic pharmacologically paralyzed -  
 witnessed movement all 4 extremities R & L.

**Appendix K:**

**NASS CDS OCCUPANT ASSESSMENT FORM:**

**VEHICLE #2 DRIVER**



## OCCUPANT ASSESSMENT FORM

1. Primary Sampling Unit Number 10  
2. Case Number - Stratum 9518  
3. Vehicle Number 02  
4. Occupant Number 01

### OCCUPANT'S CHARACTERISTICS

5. Occupant's Age 80  
Code actual age at time of accident.  
(00) Less than one year old (specify by month):  
\_\_\_\_\_  
(97) 97 years and older  
(99) Unknown
6. Occupant's Sex 1  
(1) Male  
(2) Female-not reported pregnant  
(3) Female-pregnant-1st trimester(1st-3rd month)  
(4) Female-pregnant-2nd trimester(4th-6th month)  
(5) Female-pregnant-3rd trimester(7th-9th month)  
(6) Female-pregnant-term unknown  
(9) Unknown
7. Occupant's Height 999  
Code actual height to the nearest  
centimeter.  
(999) Unknown  
\_\_\_\_ inches X 2.54 = \_\_\_\_\_ centimeters
8. Occupant's Weight 999  
Code actual weight to the nearest  
kilogram.  
(999) Unknown  
\_\_\_\_ pounds X .4536 = \_\_\_\_\_ kilograms
9. Occupant's Role 1  
(1) Driver  
(2) Passenger  
(9) Unknown

### OCCUPANT'S SEATING

10. Occupant's Seat Position 11  
*Front Seat*  
(11) Left side  
(12) Middle  
(13) Right side  
(14) Other (specify): \_\_\_\_\_  
(15) On or in the lap of another occupant
- Second Seat*  
(21) Left side  
(22) Middle  
(23) Right side  
(24) Other (specify): \_\_\_\_\_  
(25) On or in the lap of another occupant
- Third Seat*  
(31) Left side  
(32) Middle  
(33) Right side  
(34) Other (specify): \_\_\_\_\_  
(35) On or in the lap of another occupant
- Fourth Seat*  
(41) Left side  
(42) Middle  
(43) Right side  
(44) Other (specify): \_\_\_\_\_  
(45) On or in the lap of another occupant
- (97) In or on unenclosed area  
(98) Other seat (specify): \_\_\_\_\_  
(99) Unknown
11. Occupant's Posture 9  
(0) Normal posture
- Abnormal posture*  
(1) Kneeling or standing on seat  
(2) Lying on or across seat  
(3) Kneeling, standing or sitting in front of seat  
(4) Sitting sideways or turned to talk with another occupant or to look out a rear window  
(5) Sitting on a console  
(6) Lying back in a reclined seat position  
(7) Bracing with feet or hands on a surface in front of seat  
(8) Other abnormal posture (specify): \_\_\_\_\_  
(9) Unknown

**EJECTION/ENTRAPMENT**12. Ejection 0

- (0) No ejection
- (1) Complete ejection
- (2) Partial ejection
- (3) Ejection, unknown degree
- (9) Unknown

13. Ejection Area 0

- (0) No ejection
- (1) Windshield
- (2) Left front
- (3) Right front
- (4) Left rear
- (5) Right rear
- (6) Rear
- (7) Roof
- (8) Other area (e.g., back of pickup, etc.)  
(specify): \_\_\_\_\_
- (9) Unknown

14. Ejection Medium 0

- (0) No ejection
- (1) Door/hatch/tailgate
- (2) Nonfixed roof structure
- (3) Fixed glazing
- (4) Nonfixed glazing (specify): \_\_\_\_\_
- (5) Integral structure
- (8) Other medium (specify): \_\_\_\_\_
- (9) Unknown

15. Medium Status (Immediately Prior To Impact) 0

- (0) No ejection
- (1) Open
- (2) Closed
- (3) Integral structure
- (9) Unknown

16. Entrapment 0

- (0) Not entrapped/exit not inhibited
- (1) Entrapped/pinned - mechanically restrained
- (2) Could not exit vehicle due to jammed doors, fire, etc.  
(specify): \_\_\_\_\_
- (9) Unknown

17. Occupant Mobility 4

- (0) Occupant fatal before removed from vehicle
- (1) Removed from vehicle while unconscious or disoriented
- (2) Removed from vehicle due to injuries
- (3) Exited vehicle with some assistance
- (4) Exited vehicle under own power
- (5) Occupant fully ejected
- (9) Unknown

**BELT SYSTEM FUNCTION**18. Manual (Active) Belt System Availability 4

- (0) None available
- (1) Belt removed/destroyed
- (2) Shoulder belt
- (3) Lap belt
- (4) Lap and shoulder belt
- (5) Belt available—type unknown

*Integral Belt Partially Destroyed*

- (6) Shoulder belt (lap belt destroyed/removed)
- (7) Lap belt (shoulder belt destroyed/removed)
- (8) Other belt (specify):

(9) Unknown

19. Manual (Active) Belt System Use 04

- (00) None used, not available, or belt removed/destroyed
- (01) Inoperative (specify):

- (02) Shoulder belt
- (03) Lap belt
- (04) Lap and shoulder belt
- (05) Belt used—type unknown
- (08) Other belt used (specify):

- (12) Shoulder belt used with child safety seat
- (13) Lap belt used with child safety seat
- (14) Lap and shoulder belt used with child safety seat
- (15) Belt used with child safety seat—type unknown
- (18) Other belt used with child safety seat (specify):
- (99) Unknown if belt used

20. Proper Use of Manual (Active) Belts 9

- (0) None used or not available
- (1) Belt used properly
- (2) Belt used properly with child safety seat

*Belt Used Improperly*

- (3) Shoulder belt worn under arm
- (4) Shoulder belt worn behind back or seat
- (5) Belt worn around more than one person
- (6) Lap belt worn on abdomen
- (7) Lap belt or lap and shoulder belt used improperly with child safety seat (specify):

(8) Other improper use of manual belt system (specify):

(9) Unknown

21. Manual (Active) Belt Failure Modes During Accident 1

- (0) No manual belt used or not available
- (1) No manual belt failure(s)
- (2) Torn webbing (stretched webbing not included)
- (3) Broken buckle or latchplate
- (4) Upper anchorage separated
- (5) Other anchorage separated (specify):

- (6) Broken retractor
- (7) Combination of above (specify):

(8) Other manual belt failure (specify):

(9) Unknown

22. Shoulder Belt Upper Anchorage Adjustment 2

- (0) No shoulder belt
- (1) No upper anchorage adjustment for shoulder belt

*Adjustable Shoulder Belt Upper Anchorage*

- (2) In full up position
- (3) In mid position
- (4) In full down position
- (5) Position unknown
- (9) Unknown if position has adjustable upper anchorage adjustment

23. Automatic (Passive) Belt System Availability/Function 0

- (0) Not equipped/not available
- (1) 2 point automatic belts
- (2) 3 point automatic belts
- (3) Automatic belts - type unknown

*Non-functional*

- (4) Automatic belts destroyed or rendered inoperative
- (9) Unknown

24. Automatic (Passive) Belt System Use 0

- (0) Not equipped/not available/destroyed or rendered inoperative
- (1) Automatic belt in use
- (2) Automatic belt not in use (manually disconnected, motorized track inoperative) (specify):
- (3) Automatic belt use unknown
- (9) Unknown

25. Automatic (Passive) Belt System Type 0

- (0) Not equipped/not available
- (1) Non-motorized system
- (2) Motorized system
- (9) Unknown

26. Proper Use of Automatic (Passive) Belt System 0

- (0) Not equipped/not available/not used
- (1) Automatic belt used properly
- (2) Automatic belt used properly with child safety seat

*Automatic Belt Used Improperly*

- (3) Automatic shoulder belt worn under arm
- (4) Automatic shoulder belt worn behind back
- (5) Automatic belt worn around more than one person
- (6) Lap portion of automatic belt worn on abdomen
- (7) Automatic lap and shoulder belt or automatic shoulder belt used improperly with child safety seat (specify):

(8) Other improper use of automatic belt system (specify):

(9) Unknown

27. Automatic (Passive) Belt Failure Modes During Accident 0

- (0) Not equipped/not available/not in use
- (1) No automatic belt failure(s)
- (2) Torn webbing (stretched webbing not included)
- (3) Broken buckle or latchplate
- (4) Upper anchorage separated
- (5) Other anchorage separated (specify):

- (6) Broken retractor
- (7) Combination of above (specify):

(8) Other automatic belt failure (specify):

(9) Unknown

**POLICE REPORTED RESTRAINT USE**28. Police Reported Belt Use 4

- (0) None used  
 (1) Police did not indicate belt use  
 (2) Shoulder belt  
 (3) Lap belt  
 (4) Lap and shoulder belt  
 (5) Belt used, type not specified  
 (6) Child safety seat  
 (7) Automatic belt  
 (8) Other type belt, (specify):  
 (9) Police indicated "unknown"

29. Police Reported Air Bag Availability/Function 3

- (0) No air bag available  
 (1) Police did not indicate air bag availability/function  
 (2) Deployed  
 (3) Not deployed  
 (4) Unknown if deployed  
 (9) Police indicated "unknown"

Check the Primary Source Used In Determining Belt Use.

- ☐ Not equipped/not available/destroyed or rendered inoperative  
☒ Vehicle inspection  
☐ Official injury data  
☐ Driver/occupant interview  
☐ Other (specify):  
☐ Unknown if belt used

**AIR BAG SYSTEM FUNCTION**30. Frontal Air Bag System Availability/Function (This Occupant Position) 1

- (0) Not equipped/not available  
 (1) Air bag

*Non-functional*

- (2) Air bag disconnected (specify):  
 (3) Air bag not reinstalled  
 (9) Unknown

31. Frontal Air Bag System Deployment (This Occupant Position) 7

- (0) Not equipped/not available  
 (1) Deployed during accident (as a result of impact)  
 (2) Deployed inadvertently just prior to accident  
 (3) Deployed, details unknown  
 (4) Deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)  
 (5) Unknown if deployed  
 (7) Nondeployed  
 (9) Unknown

32. Other Than First Seat Frontal Air Bag Availability/Function (This Occupant Position) 0

- (0) Not equipped/not available  
 (1) Air bag

*Non-functional*

- (2) Air bag disconnected (specify):  
 (3) Air bag not reinstalled  
 (9) Unknown

*Specify type of "other" air bag present:*

33. Air Bag(s) Deployment, Other Than First Seat Frontal (This Occupant Position) 0

- (0) Not equipped with an "other" air bag  
 (1) Deployed during accident (as a result of impact)  
 (2) Deployed inadvertently just prior to accident  
 (3) Deployed, details unknown  
 (4) Deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)  
 (5) Unknown if deployed  
 (7) Nondeployed  
 (9) Unknown

34. Are There Indications of Air Bag System Failure? (This Occupant Position) 1

- (0) Not equipped/not available  
 (1) No  
 (2) Yes (specify):  
 (9) Unknown

## FIRST SEAT FRONTAL AIR BAG SYSTEM EVALUATION

35. Had Vehicle Been in Previous Accident(s)? 9

- (0) Not equipped/not available  
(1) No previous accidents

Yes

- (2) Previous accident(s) without deployment(s)  
(3) One previous accident with deployment  
(4) More than one previous accident with at least one deployment  
(8) Previous accidents, unknown deployment status  
(9) Unknown

36. Type of Air Bag 1

- (0) Not equipped/not available  
(1) Original manufacturer installed system  
(2) Retrofitted air bag  
(3) Replacement air bag  
(8) Unknown type of air bag  
(9) Unknown

37. Had Any Prior Maintenance/Service Been Performed On This Air Bag System? 9

- (0) Not equipped/not available  
(1) No prior maintenance  
(2) Yes, prior maintenance (specify):  
\_\_\_\_\_  
(9) Unknown

38. Air Bag Deployment Accident Event Sequence Number 97

- (00) Not equipped/not available  
\_\_\_\_\_  
Code the accident event sequence number that initiated the air bag deployment  
(96) Deployed, unknown event  
(97) Not deployed  
(98) Unknown if deployed  
(99) Unknown

39. CDC For Air Bag Deployment Impact 7

- (0) Not equipped/not available  
(1) Highest delta V  
(2) Second highest delta V  
(3) Other non-coded delta V (specify):  
\_\_\_\_\_  
(6) Deployed, unknown event  
(7) Not deployed  
(8) Unknown if deployed  
(9) Unknown

40. Longitudinal Component of Delta V For Air Bag + 997

Deployment Impact

(\_000) Not equipped/not available

Code the value of the delta V for the impact that initiated the air bag deployment

(\_996) Deployment, unknown longitudinal Delta V

(\_997) Not deployed

(\_998) Unknown if deployed

(\_999) Unknown

41. Did Air Bag Module Cover Flap(s) Open At Designated Taar Points? 7

- (0) Not equipped/not available  
(1) No  
(2) Yes  
(3) Deployed, unknown if flap(s) opened at designated taar points  
(7) Not deployed  
(8) Unknown if deployed  
(9) Unknown

42. Were Air Bag Module Cover Flap(s) Damaged? 7

- (0) Not equipped/not available  
(1) No  
(2) Yes (specify):  
(3) Deployed, unknown if air bag module cover flap(s) damaged  
(7) Not deployed  
(8) Unknown if deployed  
(9) Unknown

43. Was There Damage To The Air Bag? 97

- (00) Not equipped/not available  
(01) Not damaged

Yes - Air Bag Damage

- (02) Ruptured  
(03) Cut  
(04) Torn  
(05) Holed  
(06) Burned  
(07) Abraded  
(88) Other damage (specify):  
\_\_\_\_\_

(95) Damaged, details unknown

(96) Deployed, unknown if damaged

(97) Not deployed

(98) Unknown if deployed

(99) Unknown



**FIRST SEAT FRONTAL AIR BAG SYSTEM  
EVALUATION *continued***

44. Source of Air Bag Damage 9 7  
 (00) Not equipped/not available  
 (01) Not damaged  
 (02) Object worn by occupant, (specify):  
 (03) Object carried by occupant, (specify):  
 (04) Adaptive/assistive controls, (specify):  
 (05) Fire in vehicle  
 (06) Thermal burns  
 (07) Rescue or emergency efforts  
 (88) Other damage source (specify):  
 (95) Damaged, unknown source  
 (96) Deployed, unknown if damaged  
 (97) Not deployed  
 (98) Unknown if deployed  
 (99) Unknown
45. Was The Air Bag Tethered? 7  
 (0) Not equipped/not available  
 (1) No  
 (2) Yes (specify number of tether straps):  
 (3) Deployed, unknown if tethered  
 (7) Not deployed  
 (8) Unknown if deployed  
 (9) Unknown
46. Did The Air Bag Have Vent Ports? 7  
 (0) Not equipped/not available  
 (1) No  
 (2) Yes (specify number of vent ports):  
 (3) Deployed, unknown if vent ports present  
 (7) Not deployed  
 (8) Unknown if deployed  
 (9) Unknown
47. Was the Air Bag in this Occupant's Position Contacted by Another Occupant? 7  
 (0) Not equipped/not available  
 (1) No  
 (2) Yes (specify):  
 (3) Deployed, unknown if other occupant contact to air bag  
 (7) Not deployed  
 (8) Unknown if deployed  
 (9) Unknown
48. Was This Occupant Wearing Eye-wear? 7  
 (0) Not equipped/not available  
 (1) No  
 (2) Eyeglasses/sunglasses  
 (3) Contact lenses  
 (4) Deployed, unknown if eyewear worn  
 (7) Not deployed  
 (8) Unknown if deployed  
 (9) Unknown

**HEAD RESTRAINT AND SEAT EVALUATION**

49. Head Restraint Type/Damage by Occupant at This Occupant Position 3  
 (0) No head restraints  
 (1) Integral—no damage  
 (2) Integral—damaged during accident  
 (3) Adjustable—no damage  
 (4) Adjustable—damaged during accident  
 (5) Add-on—no damage  
 (6) Add-on—damaged during accident  
 (8) Other (specify):  
 (9) Unknown
50. Seat Type (this Occupant Position) 0 6  
 (00) Occupant not seated or no seat  
 (01) Bucket  
 (02) Bucket with folding back  
 (03) Bench  
 (04) Bench with separate back cushions  
 (05) Bench with folding back(s)  
 (06) Split bench with separate back cushions  
 (07) Split bench with folding back(s)  
 (08) Pedestal (i.e., column supported)  
 (09) Box mounted seat (i.e., van type)  
 (10) Other seat type (specify):  
 (99) Unknown
51. Seat Orientation (this Occupant Position) 1  
 (0) Occupant not seated or no seat  
 (1) Forward facing seat  
 (2) Rear facing seat  
 (3) Side facing seat (inward)  
 (4) Side facing seat (outward)  
 (8) Other (specify):  
 (9) Unknown
52. Seat Track Adjusted Position Prior To Impact 5  
 (0) Occupant not seated or no seat  
 (1) Non-adjustable seat track  
*Adjustable Seat Track*  
 (2) Seat at forward most track position  
 (3) Seat between forward most and middle track positions  
 (4) Seat at middle track position  
 (5) Seat between middle and rear most track positions  
 (6) Seat at rear most track position  
 (9) Unknown

**HEAD RESTRAINT AND SEAT EVALUATION** *continued***53. Seat Back Incline Prior and Post Impact** 2 3

- (00) Occupant not seated or no seat  
 (01) Not adjustable

*Upright prior to impact*

- (11) Moved to completely rearward position  
 (12) Moved to rearward midrange position  
 (13) Moved to slightly rearward position  
 (14) Retained pre-impact position  
 (15) Moved to slightly forward position  
 (16) Moved to forward midrange position  
 (17) Moved to completely forward position

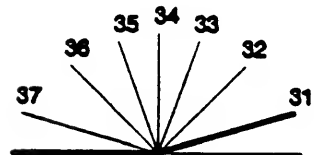
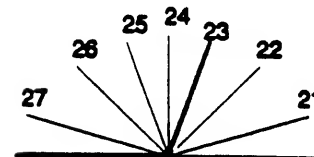
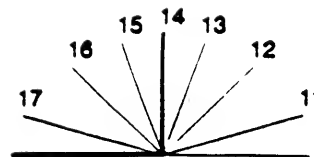
*Slightly reclined prior to impact*

- (21) Moved to completely rearward position  
 (22) Moved to rearward midrange position  
 (23) Retained pre-impact position  
 (24) Moved to upright position  
 (25) Moved to slightly forward position  
 (26) Moved to forward midrange position  
 (27) Moved to completely forward position

*Completely reclined prior to impact*

- (31) Retained pre-impact position  
 (32) Moved to rearward midrange position  
 (33) Moved to slightly rearward position  
 (34) Moved to upright position  
 (35) Moved to slightly forward position  
 (36) Moved to forward midrange position  
 (37) Moved to completely forward position

(99) Unknown

**54. Seat Performance (this Occupant Position)** 1

- (0) Occupant not seated or no seat  
 (1) No seat performance failure(s)  
 (2) Seat adjusters failed  
 (3) Seat back folding locks or "seat back" failed  
     (specify): \_\_\_\_\_  
 (4) Seat track/anchors failed  
 (5) Deformed by impact of occupant  
 (6) Deformed by passenger compartment  
     intrusion, (specify): \_\_\_\_\_  
 (7) Combination of above (specify): \_\_\_\_\_  
 (8) Other (specify): \_\_\_\_\_  
 (9) Unknown

**CHILD SAFETY SEAT**

55. Child Safety Seat Make/Model 0 0 0  
(000) No child safety seat  
Applicable codes are found in your NASS CDS  
Data Collection, Coding and Editing  
(950) Built-in child safety seat  
(997) Other make/model (specify):  
\_\_\_\_\_  
(998) Unknown make/model  
(999) Unknown if child safety seat used

56. Type of Child Safety Seat 0  
(0) No child safety seat  
(1) Infant seat  
(2) Toddler seat  
(3) Convertible seat  
(4) Booster seat - with shield  
(5) Booster seat - without shield  
(7) Other type child safety seat (specify):  
\_\_\_\_\_  
(8) Unknown child safety seat type  
(9) Unknown if child safety seat used

57. Child Safety Seat Orientation 0 0  
(00) No child safety seat  
  
*Designed for Rear Facing for This Age/Weight*  
(01) Rear facing  
(02) Forward facing  
(08) Other orientation (specify):  
\_\_\_\_\_  
(09) Unknown orientation

- Designed For Forward Facing for This Age/Weight*  
(11) Rear facing  
(12) Forward facing  
(18) Other orientation (specify):  
\_\_\_\_\_  
(19) Unknown orientation

- Unknown Design or Orientation For This Age/Weight, or Unknown Age/Weight*  
(21) Rear facing  
(22) Forward facing  
(28) Other orientation (specify):  
\_\_\_\_\_  
(29) Unknown orientation  
(99) Unknown if child safety seat used

58. Child Safety Seat Harness Usage 0 0

59. Child Safety Seat Shield Usage 0 0

60. Child Safety Seat Tether Usage 0 0

Note: Options below applicable to  
Variables OA58-OA60.

(00) No child safety seat

*Not Designed With Harness/Shield/Tether*

- (01) After market harness/shield/tether  
added, not used  
(02) After market harness/shield/tether used  
(03) Child safety seat used, but no after market  
harness/shield/tether added  
(09) Unknown if harness/shield/tether  
added or used

*Designed With Harness/Shield/Tether*

- (11) Harness/shield/tether not used  
(12) Harness/shield/tether used  
(19) Unknown if harness/shield/tether used

*Unknown If Designed With Harness/Shield/Tether*

- (21) Harness/shield/tether not used  
(22) Harness/shield/tether used  
(29) Unknown if harness/shield/tether used  
  
(99) Unknown if child safety seat used

**INJURY CONSEQUENCES****61. Injury Severity (Police Rating)** 0

- (0) O - No injury
- (1) C - Possible injury
- (2) B - Nonincapacitating injury
- (3) A - Incapacitating injury
- (4) K - Killed
- (5) U - Injury, severity unknown
- (6) Died prior to accident
- (9) Unknown

**62. Treatment - Mortality** 0

- (0) No treatment
- (1) Fatal
- (2) Fatal - ruled disease (specify):  
\_\_\_\_\_

*Nonfatal*

- (3) Hospitalization
- (4) Transported and released
- (5) Treatment at scene - nontransported
- (6) Treatment later
- (7) Treatment - other (specify):  
\_\_\_\_\_
- (8) Transported to a medical facility-unknown if treated
- (9) Unknown

**63. Type Of Medical Facility (for Initial Treatment)** 0

- (0) Not treated at a medical facility
- (1) Trauma center
- (2) Hospital
- (3) Medical clinic
- (4) Physician's office
- (5) Treatment later at medical facility
- (8) Other (specify):  
\_\_\_\_\_

- (9) Unknown

**64. Hospital Stay** 00

- (00) Not Hospitalized
- \_\_\_\_\_ Code the number of days (up through 60) that the occupant stayed in hospital.
- (61) 61 days or more
- (99) Unknown

**65. Working Days Lost** 97

- \_\_\_\_\_ Code the number of days (up through 60) that the occupant lost from work due to the accident
- (00) No working days lost
- (61) 61 days or more
- (62) Fatally injured
- (97) Not working prior to accident
- (99) Unknown

**STOP WORK HERE****VARIABLES 66-74****TO BE CODED BY THE ZONE CENTER**

**TO BE CODED BY THE ZONE CENTER****INJURY CONSEQUENCES**

66. Time to Death 00  
 \_\_\_\_\_ Code number of hours from time of accident to time of death up through 24 hours. If time of death is greater than 24 hours, code number of days. (Note: 1 day = 31, 2 days = 32, ... n days = 30 + n up through 30 days = 60)  
 (00) Not fatal  
 (96) Fatal - ruled disease  
 (99) Unknown

67. 1st Medically Reported Cause of Death 00

68. 2nd Medically Reported Cause of Death 00

69. 3rd Medically Reported Cause of Death 00

\_\_\_\_\_ Code the Occupant Injury from line number(s) for the medically reported injury(s) which reportedly contributed to this occupant's death

(00) Not fatal or no additional causes  
 (96) Mode of death given but specific injuries are not linked to cause of death. (specify): \_\_\_\_\_

(97) Other result (includes fatal ruled disease) (specify): \_\_\_\_\_

(99) Unknown

70. Number of Recorded Injuries for This Occupant 00

\_\_\_\_\_ Code the actual number of injuries recorded for this occupant.

(00) No recorded injuries  
 (97) Injured, details unknown  
 (99) Unknown if injured

**TRAUMA DATA**

71. Glasgow Coma Scale (GCS) Score 00  
 (at Medical Facility)  
 (00) Not injured  
 (01) Injured - not treated at medical facility  
 (02) No GCS Score at medical facility  
 (03-15) Code the actual value of the initial GCS Score recorded at medical facility.  
 (97) Injured, details unknown  
 (99) Unknown if injured

72. Was the Occupant Given Blood? 1  
 (1) No - blood not given  
 (2) Yes - blood given  
 (specify units): \_\_\_\_\_  
 (9) Unknown if blood given

73. Arterial Blood Gases (ABG) - HCO<sub>3</sub> 00  
 (00) Not injured  
 (01) Injured, ABGs not measured or reported  
 (02-50) Code the actual value of the HCO<sub>3</sub>  
 (96) ABGs reported, HCO<sub>3</sub> unknown  
 (97) Injured, details unknown  
 (99) Unknown if injured

**BELT USE DETERMINATION**

74. Primary Source of Belt Use Determination 1  
 (0) Not equipped/not available/destroyed or rendered inoperative  
 (1) Vehicle inspection  
 (2) Official injury data  
 (3) Driver/occupant interview  
 (8) Other (specify): \_\_\_\_\_  
 (9) Unknown if belt used

**Appendix L:**

**NASS CDS OCCUPANT ASSESSMENT FORM:**

**VEHICLE #2 RIGHT FRONT PASSENGER**



# OCCUPANT ASSESSMENT FORM

1. Primary Sampling Unit Number 10  
2. Case Number - Stratum 9518  
3. Vehicle Number 02  
4. Occupant Number 02

## OCCUPANT'S CHARACTERISTICS

5. Occupant's Age 81  
Code actual age at time of accident.  
(00) Less than one year old (specify by month):  
(97) 97 years and older  
(99) Unknown
6. Occupant's Sex 2  
(1) Male  
(2) Female-not reported pregnant  
(3) Female-pregnant-1st trimester(1st-3rd month)  
(4) Female-pregnant-2nd trimester(4th-6th month)  
(5) Female-pregnant-3rd trimester(7th-9th month)  
(6) Female-pregnant-term unknown  
(9) Unknown
7. Occupant's Height 999  
Code actual height to the nearest  
centimeter.  
(999) Unknown  
  
\_\_\_\_\_ inches X 2.54 = \_\_\_\_\_ centimeters
8. Occupant's Weight 999  
Code actual weight to the nearest  
kilogram.  
(999) Unknown  
  
\_\_\_\_\_ pounds X .4536 = \_\_\_\_\_ kilograms
9. Occupant's Role 2  
(1) Driver  
(2) Passenger  
(9) Unknown

## OCCUPANT'S SEATING

10. Occupant's Seat Position 13  
*Front Seat*  
(11) Left side  
(12) Middle  
(13) Right side  
(14) Other (specify): \_\_\_\_\_  
(15) On or in the lap of another occupant
- Second Seat*  
(21) Left side  
(22) Middle  
(23) Right side  
(24) Other (specify): \_\_\_\_\_  
(25) On or in the lap of another occupant
- Third Seat*  
(31) Left side  
(32) Middle  
(33) Right side  
(34) Other (specify): \_\_\_\_\_  
(35) On or in the lap of another occupant
- Fourth Seat*  
(41) Left side  
(42) Middle  
(43) Right side  
(44) Other (specify): \_\_\_\_\_  
(45) On or in the lap of another occupant
- (97) In or on unenclosed area  
(98) Other seat (specify): \_\_\_\_\_  
(99) Unknown
11. Occupant's Posture 9  
(0) Normal posture
- Abnormal posture*  
(1) Kneeling or standing on seat  
(2) Lying on or across seat  
(3) Kneeling, standing or sitting in front of seat  
(4) Sitting sideways or turned to talk with another occupant or to look out a rear window  
(5) Sitting on a console  
(6) Lying back in a reclined seat position  
(7) Bracing with feet or hands on a surface in front of seat  
(8) Other abnormal posture (specify): \_\_\_\_\_  
(9) Unknown

**EJECTION/ENTRAPMENT****12. Ejection**

- (0) No ejection
- (1) Complete ejection
- (2) Partial ejection
- (3) Ejection, unknown degree
- (9) Unknown

0**13. Ejection Area**

- (0) No ejection
- (1) Windshield
- (2) Left front
- (3) Right front
- (4) Left rear
- (5) Right rear
- (6) Rear
- (7) Roof
- (8) Other area (e.g., back of pickup, etc.)  
(specify): \_\_\_\_\_
- (9) Unknown

0**14. Ejection Medium**

- (0) No ejection
- (1) Door/hatch/tailgate
- (2) Nonfixed roof structure
- (3) Fixed glazing
- (4) Nonfixed glazing (specify): \_\_\_\_\_
- (5) Integral structure
- (8) Other medium (specify): \_\_\_\_\_
- (9) Unknown

0**15. Medium Status (Immediately Prior To Impact)**

- (0) No ejection
- (1) Open
- (2) Closed
- (3) Integral structure
- (9) Unknown

0**16. Entrapment**

- (0) Not entrapped/exit not inhibited
- (1) Entrapped/pinned - mechanically restrained
- (2) Could not exit vehicle due to jammed doors, fire, etc.  
(specify): \_\_\_\_\_
- (9) Unknown

0**17. Occupant Mobility**

- (0) Occupant fatal before removed from vehicle
- (1) Removed from vehicle while unconscious or disoriented
- (2) Removed from vehicle due to injuries
- (3) Exited vehicle with some assistance
- (4) Exited vehicle under own power
- (5) Occupant fully ejected
- (9) Unknown

4



**BELT SYSTEM FUNCTION****18. Manual (Active) Belt System Availability** 4

- (0) None available
- (1) Belt removed/destroyed
- (2) Shoulder belt
- (3) Lap belt
- (4) Lap and shoulder belt
- (5) Belt available—type unknown

*Integral Belt Partially Destroyed*

- (6) Shoulder belt (lap belt destroyed/removed)
- (7) Lap belt (shoulder belt destroyed/removed)
- (8) Other belt (specify):

(9) Unknown

**19. Manual (Active) Belt System Use** 04

- (00) None used, not available, or belt removed/destroyed
- (01) Inoperative (specify):

- (02) Shoulder belt
- (03) Lap belt
- (04) Lap and shoulder belt
- (05) Belt used—type unknown
- (08) Other belt used (specify):

- (12) Shoulder belt used with child safety seat
- (13) Lap belt used with child safety seat
- (14) Lap and shoulder belt used with child safety seat
- (15) Belt used with child safety seat—type unknown
- (18) Other belt used with child safety seat (specify):
- (99) Unknown if belt used

**20. Proper Use of Manual (Active) Belts** 9

- (0) None used or not available
- (1) Belt used properly
- (2) Belt used properly with child safety seat

*Belt Used Improperly*

- (3) Shoulder belt worn under arm
- (4) Shoulder belt worn behind back or seat
- (5) Belt worn around more than one person
- (6) Lap belt worn on abdomen
- (7) Lap belt or lap and shoulder belt used improperly with child safety seat (specify):

(8) Other improper use of manual belt system (specify):

(9) Unknown

**21. Manual (Active) Belt Failure Modes During Accident** 1

- (0) No manual belt used or not available
- (1) No manual belt failure(s)
- (2) Torn webbing (stretched webbing not included)
- (3) Broken buckle or latchplate
- (4) Upper anchorage separated
- (5) Other anchorage separated (specify):

(6) Broken retractor

(7) Combination of above (specify):

(8) Other manual belt failure (specify):

(9) Unknown

**22. Shoulder Belt Upper Anchorage Adjustment** 4

- (0) No shoulder belt
- (1) No upper anchorage adjustment for shoulder belt

*Adjustable shoulder Belt Upper Anchorage*

- (2) In full up position
- (3) In mid position
- (4) In full down position
- (5) Position unknown
- (9) Unknown if position has adjustable upper anchorage adjustment

**23. Automatic (Passive) Belt System Availability/Function** 0

- (0) Not equipped/not available
- (1) 2 point automatic belts
- (2) 3 point automatic belts
- (3) Automatic belts - type unknown

*Non-functional*

- (4) Automatic belts destroyed or rendered inoperative
- (9) Unknown

**24. Automatic (Passive) Belt System Use** 0

- (0) Not equipped/not available/destroyed or rendered inoperative
- (1) Automatic belt in use
- (2) Automatic belt not in use (manually disconnected, motorized track inoperative) (specify):
- (3) Automatic belt use unknown
- (9) Unknown

**25. Automatic (Passive) Belt System Type** 0

- (0) Not equipped/not available
- (1) Non-motorized system
- (2) Motorized system
- (9) Unknown

**26. Proper Use of Automatic (Passive) Belt System** 0

- (0) Not equipped/not available/not used
- (1) Automatic belt used properly
- (2) Automatic belt used properly with child safety seat

*Automatic Belt Used Improperly*

- (3) Automatic shoulder belt worn under arm
- (4) Automatic shoulder belt worn behind back
- (5) Automatic belt worn around more than one person
- (6) Lap portion of automatic belt worn on abdomen
- (7) Automatic lap and shoulder belt or automatic shoulder belt used improperly with child safety seat (specify):

(8) Other improper use of automatic belt system (specify):

(9) Unknown

**27. Automatic (Passive) Belt Failure Modes During Accident** 0

- (0) Not equipped/not available/not in use
- (1) No automatic belt failure(s)
- (2) Torn webbing (stretched webbing not included)
- (3) Broken buckle or latchplate
- (4) Upper anchorage separated
- (5) Other anchorage separated (specify):

(6) Broken retractor

(7) Combination of above (specify):

(8) Other automatic belt failure (specify):

(9) Unknown

**POLICE REPORTED RESTRAINT USE**28. Police Reported Belt Use 4

- (0) None used  
 (1) Police did not indicate belt use  
 (2) Shoulder belt  
 (3) Lap belt  
 (4) Lap and shoulder belt  
 (5) Belt used, type not specified  
 (6) Child safety seat  
 (7) Automatic belt  
 (8) Other type belt, (specify):  
 (9) Police indicated "unknown"

29. Police Reported Air Bag Availability/Function 3

- (0) No air bag available  
 (1) Police did not indicate air bag availability/function  
 (2) Deployed  
 (3) Not deployed  
 (4) Unknown if deployed  
 (9) Police indicated "unknown"

Check the Primary Source Used In Determining Belt Use.

- ☐ Not equipped/not available/destroyed or rendered inoperative  
☒ Vehicle inspection  
☐ Official injury data  
☐ Driver/occupant interview  
☐ Other (specify):  
☐ Unknown if belt used

**AIR BAG SYSTEM FUNCTION**30. Frontal Air Bag System Availability/Function (This Occupant Position) 1

- (0) Not equipped/not available  
 (1) Air bag

*Non-functional*

- (2) Air bag disconnected (specify):

- (3) Air bag not reinstalled  
 (9) Unknown

31. Frontal Air Bag System Deployment (This Occupant Position) 7

- (0) Not equipped/not available  
 (1) Deployed during accident (as a result of impact)  
 (2) Deployed inadvertently just prior to accident  
 (3) Deployed, details unknown  
 (4) Deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)  
 (5) Unknown if deployed  
 (7) Nondeployed  
 (9) Unknown

32. Other Than First Seat Frontal Air Bag Availability/Function (This Occupant Position) 0

- (0) Not equipped/not available  
 (1) Air bag

*Non-functional*

- (2) Air bag disconnected (specify):

- (3) Air bag not reinstalled  
 (9) Unknown

*Specify type of "other" air bag present:*

33. Air Bag(s) Deployment, Other Than First Seat Frontal (This Occupant Position) 0

- (0) Not equipped with an "other" air bag  
 (1) Deployed during accident (as a result of impact)  
 (2) Deployed inadvertently just prior to accident  
 (3) Deployed, details unknown  
 (4) Deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)  
 (5) Unknown if deployed  
 (7) Nondeployed  
 (9) Unknown

34. Are There Indications of Air Bag System Failure? (This Occupant Position) 1

- (0) Not equipped/not available  
 (1) No  
 (2) Yes (specify):

- (9) Unknown

## FIRST SEAT FRONTAL AIR BAG SYSTEM EVALUATION

35. Had Vehicle Been in Previous Accident(s)? 9

- (0) Not equipped/not available  
(1) No previous accidents

Yes

- (2) Previous accident(s) without deployment(s)  
(3) One previous accident with deployment  
(4) More than one previous accident with at least one deployment  
(8) Previous accidents, unknown deployment status  
(9) Unknown

36. Type of Air Bag 1

- (0) Not equipped/not available  
(1) Original manufacturer installed system  
(2) Retrofitted air bag  
(3) Replacement air bag  
(8) Unknown type of air bag  
(9) Unknown

37. Had Any Prior Maintenance/Service Been Performed On This Air Bag System? 9

- (0) Not equipped/not available  
(1) No prior maintenance  
(2) Yes, prior maintenance (specify): \_\_\_\_\_

(9) Unknown

38. Air Bag Deployment Accident Event Sequence Number 97

- (00) Not equipped/not available  
\_\_\_\_\_ Code the accident event sequence number that initiated the air bag deployment

- (96) Deployed, unknown event  
(97) Not deployed  
(98) Unknown if deployed  
(99) Unknown

39. CDC For Air Bag Deployment Impact 7

- (0) Not equipped/not available  
(1) Highest delta V  
(2) Second highest delta V  
(3) Other non-coded delta V (specify): \_\_\_\_\_

- (6) Deployed, unknown event  
(7) Not deployed  
(8) Unknown if deployed  
(9) Unknown

40. Longitudinal Component of Delta V For Air Bag + 997

Deployment Impact

(\_000) Not equipped/not available

Code the value of the delta V for the impact that initiated the air bag deployment

(\_996) Deployment, unknown longitudinal Delta V

(\_997) Not deployed

(\_998) Unknown if deployed

(\_999) Unknown

41. Did Air Bag Module Cover Flap(s) Open At Designated Tear Points? 7

- (0) Not equipped/not available  
(1) No  
(2) Yes  
(3) Deployed, unknown if flap(s) opened at designated tear points  
(7) Not deployed  
(8) Unknown if deployed  
(9) Unknown

42. Were Air Bag Module Cover Flap(s) Damaged? 7

- (0) Not equipped/not available  
(1) No  
(2) Yes (specify): \_\_\_\_\_  
(3) Deployed, unknown if air bag module cover flap(s) damaged  
(7) Not deployed  
(8) Unknown if deployed  
(9) Unknown

43. Was There Damage To The Air Bag? 97

- (00) Not equipped/not available  
(01) Not damaged

Yes - Air Bag Damage

- (02) Ruptured  
(03) Cut  
(04) Torn  
(05) Holed  
(06) Burned  
(07) Abraded  
(88) Other damage (specify): \_\_\_\_\_

- (95) Damaged, details unknown  
(96) Deployed, unknown if damaged  
(97) Not deployed  
(98) Unknown if deployed  
(99) Unknown

**FIRST SEAT FRONTAL AIR BAG SYSTEM  
EVALUATION** *continued*

44. Source of Air Bag Damage 9 7  
 (00) Not equipped/not available  
 (01) Not damaged  
 (02) Object worn by occupant, (specify):  
 (03) Object carried by occupant, (specify):  
 (04) Adaptive/assistive controls, (specify):  
 (05) Fire in vehicle  
 (06) Thermal burns  
 (07) Rescue or emergency efforts  
 (88) Other damage source (specify):  
 (95) Damaged, unknown source  
 (96) Deployed, unknown if damaged  
 (97) Not deployed  
 (98) Unknown if deployed  
 (99) Unknown
45. Was The Air Bag Tethered? 7  
 (0) Not equipped/not available  
 (1) No  
 (2) Yes (specify number of tether straps):  
 (3) Deployed, unknown if tethered  
 (7) Not deployed  
 (8) Unknown if deployed  
 (9) Unknown
46. Did The Air Bag Have Vent Ports? 7  
 (0) Not equipped/not available  
 (1) No  
 (2) Yes (specify number of vent ports):  
 (3) Deployed, unknown if vent ports present  
 (7) Not deployed  
 (8) Unknown if deployed  
 (9) Unknown
47. Was the Air Bag in this Occupant's Position Contacted by Another Occupant? 7  
 (0) Not equipped/not available  
 (1) No  
 (2) Yes (specify):  
 (3) Deployed, unknown if other occupant contact to air bag  
 (7) Not deployed  
 (8) Unknown if deployed  
 (9) Unknown
48. Was This Occupant Wearing Eye-wear? 7  
 (0) Not equipped/not available  
 (1) No  
 (2) Eyeglasses/sunglasses  
 (3) Contact lenses  
 (4) Deployed, unknown if eyewear worn  
 (7) Not deployed  
 (8) Unknown if deployed  
 (9) Unknown

**HEAD RESTRAINT AND SEAT EVALUATION**

49. Head Restraint Type/Damage by Occupant at This Occupant Position 3  
 (0) No head restraints  
 (1) Integral—no damage  
 (2) Integral—damaged during accident  
 (3) Adjustable—no damage  
 (4) Adjustable—damaged during accident  
 (5) Add-on—no damage  
 (6) Add-on—damaged during accident  
 (8) Other (specify):  
 (9) Unknown
50. Seat Type (this Occupant Position) 06  
 (00) Occupant not seated or no seat  
 (01) Bucket  
 (02) Bucket with folding back  
 (03) Bench  
 (04) Bench with separate back cushions  
 (05) Bench with folding back(s)  
 (06) Split bench with separate back cushions  
 (07) Split bench with folding back(s)  
 (08) Pedestal (i.e., column supported)  
 (09) Box mounted seat (i.e., van type)  
 (10) Other seat type (specify):  
 (99) Unknown
51. Seat Orientation (this Occupant Position) 1  
 (0) Occupant not seated or no seat  
 (1) Forward facing seat  
 (2) Rear facing seat  
 (3) Side facing seat (inward)  
 (4) Side facing seat (outward)  
 (8) Other (specify):  
 (9) Unknown
52. Seat Track Adjusted Position Prior To Impact 5  
 (0) Occupant not seated or no seat  
 (1) Non-adjustable seat track  
*Adjustable Seat Track*  
 (2) Seat at forward most track position  
 (3) Seat between forward most and middle track positions  
 (4) Seat at middle track position  
 (5) Seat between middle and rear most track positions  
 (6) Seat at rear most track position  
 (9) Unknown

**HEAD RESTRAINT AND SEAT EVALUATION** *continued***53. Seat Back Incline Prior and Post Impact** 2 3

(00) Occupant not seated or no seat

(01) Not adjustable

*Upright prior to impact*

(11) Moved to completely rearward position

(12) Moved to rearward midrange position

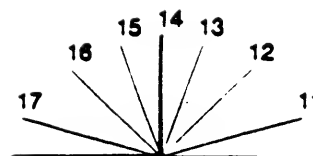
(13) Moved to slightly rearward position

(14) Retained pre-impact position

(15) Moved to slightly forward position

(16) Moved to forward midrange position

(17) Moved to completely forward position

*Slightly reclined prior to impact*

(21) Moved to completely rearward position

(22) Moved to rearward midrange position

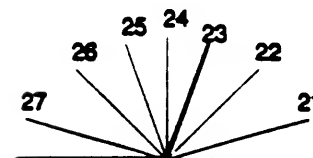
(23) Retained pre-impact position

(24) Moved to upright position

(25) Moved to slightly forward position

(26) Moved to forward midrange position

(27) Moved to completely forward position

*Completely reclined prior to impact*

(31) Retained pre-impact position

(32) Moved to rearward midrange position

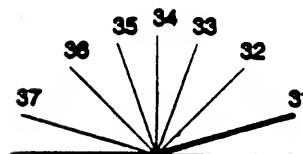
(33) Moved to slightly rearward position

(34) Moved to upright position

(35) Moved to slightly forward position

(36) Moved to forward midrange position

(37) Moved to completely forward position



(99) Unknown

**54. Seat Performance (this Occupant Position)** 1

(0) Occupant not seated or no seat

(1) No seat performance failure(s)

(2) Seat adjusters failed

(3) Seat back folding locks or "seat back" failed  
(specify): \_\_\_\_\_

(4) Seat track/anchors failed

(5) Deformed by impact of occupant

(6) Deformed by passenger compartment  
intrusion, (specify): \_\_\_\_\_

(7) Combination of above (specify): \_\_\_\_\_

(8) Other (specify): \_\_\_\_\_

(9) Unknown

**CHILD SAFETY SEAT**55. Child Safety Seat Make/Model 0 0 0

(000) No child safety seat

Applicable codes are found in your NASS CDS  
Data Collection, Coding and Editing

(950) Built-in child safety seat

(997) Other make/model (specify):  
\_\_\_\_\_

(998) Unknown make/model

(999) Unknown if child safety seat used

56. Type of Child Safety Seat 0

(0) No child safety seat

(1) Infant seat

(2) Toddler seat

(3) Convertible seat

(4) Booster seat - with shield

(5) Booster seat - without shield

(7) Other type child safety seat (specify):  
\_\_\_\_\_

(8) Unknown child safety seat type

(9) Unknown if child safety seat used

57. Child Safety Seat Orientation 0 0

(00) No child safety seat

*Designed for Rear Facing for This Age/Weight*

(01) Rear facing

(02) Forward facing

(08) Other orientation (specify):  
\_\_\_\_\_

(09) Unknown orientation

*Designed For Forward Facing for This Age/Weight*

(11) Rear facing

(12) Forward facing

(18) Other orientation (specify):  
\_\_\_\_\_

(19) Unknown orientation

*Unknown Design or Orientation For This  
Age/Weight, or Unknown Age/Weight*

(21) Rear facing

(22) Forward facing

(28) Other orientation (specify):  
\_\_\_\_\_

(29) Unknown orientation

(99) Unknown if child safety seat used

58. Child Safety Seat Harness Usage 0 059. Child Safety Seat Shield Usage 0 060. Child Safety Seat Tether Usage 0 0Note: Options below applicable to  
Variables OA58-OA60.

(00) No child safety seat

*Not Designed With Harness/Shield/Tether*(01) After market harness/shield/tether  
added, not used

(02) After market harness/shield/tether used

(03) Child safety seat used, but no after market  
harness/shield/tether added(09) Unknown if harness/shield/tether  
added or used*Designed With Harness/Shield/Tether*

(11) Harness/shield/tether not used

(12) Harness/shield/tether used

(19) Unknown if harness/shield/tether used

*Unknown If Designed With Harness/Shield/Tether*

(21) Harness/shield/tether not used

(22) Harness/shield/tether used

(29) Unknown if harness/shield/tether used

(99) Unknown if child safety seat used

**INJURY CONSEQUENCES****61. Injury Severity (Police Rating)** 0

- (0) 0 - No injury
- (1) C - Possible injury
- (2) B - Nonincapacitating injury
- (3) A - Incapacitating injury
- (4) K - Killed
- (5) U - Injury, severity unknown
- (6) Died prior to accident
- (9) Unknown

**62. Treatment - Mortality** 0

- (0) No treatment
- (1) Fatal
- (2) Fatal - ruled disease (specify):

Nonfatal

- (3) Hospitalization
- (4) Transported and released
- (5) Treatment at scene - nontransported
- (6) Treatment later
- (7) Treatment - other (specify):
- (8) Transported to a medical facility-unknown if treated
- (9) Unknown

**63. Type Of Medical Facility (for Initial Treatment)** 0

- (0) Not treated at a medical facility
- (1) Trauma center
- (2) Hospital
- (3) Medical clinic
- (4) Physician's office
- (5) Treatment later at medical facility
- (8) Other (specify):

(9) Unknown

**64. Hospital Stay** 00

- (00) Not Hospitalized
- Code the number of days (up through 60) that the occupant stayed in hospital.
- (61) 61 days or more
- (99) Unknown

**65. Working Days Lost** 97

- Code the number of days (up through 60) that the occupant lost from work due to the accident
- (00) No working days lost
- (61) 61 days or more
- (62) Fatally injured
- (97) Not working prior to accident
- (99) Unknown

**STOP WORK HERE****VARIABLES 66-74****TO BE CODED BY THE ZONE CENTER**

**TO BE CODED BY THE ZONE CENTER****INJURY CONSEQUENCES****66. Time to Death** 00

Code number of hours from time of accident to time of death up through 24 hours. If time of death is greater than 24 hours, code number of days. (Note: 1 day = 31, 2 days = 32, ... n days = 30 + n up through 30 days = 60)

- (00) Not fatal  
(96) Fatal - ruled disease  
(99) Unknown

**67. 1st Medically Reported Cause of Death** 00**68. 2nd Medically Reported Cause of Death** 00**69. 3rd Medically Reported Cause of Death** 00

Code the Occupant Injury from line number(s) for the medically reported injury(s) which reportedly contributed to this occupant's death

- (00) Not fatal or no additional causes  
(96) Mode of death given but specific injuries are not linked to cause of death. (specify):

(97) Other result (includes fatal ruled disease) (specify):

(99) Unknown

**70. Number of Recorded Injuries for This Occupant** 00

Code the actual number of injuries recorded for this occupant.

- (00) No recorded injuries  
(97) Injured, details unknown  
(99) Unknown if injured

**TRAUMA DATA****71. Glasgow Coma Scale (GCS) Score** 00

(at Medical Facility)

- (00) Not injured  
(01) Injured - not treated at medical facility  
(02) No GCS Score at medical facility  
(03-15) Code the actual value of the initial GCS Score recorded at medical facility.  
(97) Injured, details unknown  
(99) Unknown if injured

**72. Was the Occupant Given Blood?** 1

- (1) No - blood not given  
(2) Yes - blood given

(specify units):

- (9) Unknown if blood given

**73. Arterial Blood Gases (ABG) - HCO<sub>3</sub>** 00

- (00) Not injured  
(01) Injured, ABGs not measured or reported  
(02-50) Code the actual value of the HCO<sub>3</sub>  
(96) ABGs reported, HCO<sub>3</sub> unknown  
(97) Injured, details unknown  
(99) Unknown if injured

**BELT USE DETERMINATION****74. Primary Source of Belt Use Determination** 1

(0) Not equipped/not available/destroyed or rendered inoperative

- (1) Vehicle inspection  
(2) Official injury data  
(3) Driver/occupant interview  
(8) Other (specify):  
(9) Unknown if belt used



**TRANSPORTATION RESEARCH CENTER**

Indiana University

Indiana [REDACTED]

Appendix M

**ON-SITE AIR BAG INVESTIGATION**

**SELECTED PHOTOGRAPHS**

CASE NO. - 95-18

FLEET - COMMERCIAL VEHICLE

LOCATION [REDACTED] PENNSYLVANIA

ACCIDENT DATE - [REDACTED] 1995

A total of seventy-two color copies of photographs are presented and referenced as Photograph #01 through Photograph #78. All of these photographs were taken by the Transportation Research Center.

[REDACTED] 1995

Contract Number: DTNH22-94-D-17058

Prepared for:

U.S. Department of Transportation  
National Highway Traffic Safety Administration  
National Center for Statistics and Analysis  
Washington, D.C. 20590



# 1 -- Case Vehicle's eastward travel path in eastbound lane ~ 50 meters (164 feet) west of impact; NOTE: approach slope is 6% positive to the east



# 2 -- Case Vehicle's eastward travel path in eastbound lane ~ 30 meters (98 feet) west of impact





# 3 -- Case Vehicle's eastward travel path in eastbound lane ~ 10 meters (33 feet) west of impact



# 4 -- Case Vehicle's northeast travel path from POI to final rest in westbound lane;  
NOTE: final rest positions were marked by police





# 5 -- Southwest view of Case Vehicle's northeast travel path from POI to final rest area



# 6 -- Westward view of Case Vehicle's eastward travel path viewed from east of intersection





# 7 -- Vehicle #2's northward travel path in northbound lane ~ 40 meters (131 feet) south of impact; NOTE: approach slope is 4% positive to north after sag



# 8 -- Vehicle #2's northward travel path in northbound lane ~ 15 meters (49 feet) south of impact





**# 9 -- Vehicle #2's northward travel path in northbound lane ~ 5 meters (16 feet) south of impact**



**# 10 -- Vehicle #2's left front tire scuff which occurred post-impact; NOTE: scuff goes east-northeast (cells C6--F5)**





# 11 -- Close-up of Vehicle #2's left front tire scuff looking southeast



# 12 -- South-southwest view of Vehicle #2's northeastward travel path from impact to final rest





# 13 -- Southward view of Vehicle #2's northward travel path from north of point of impact

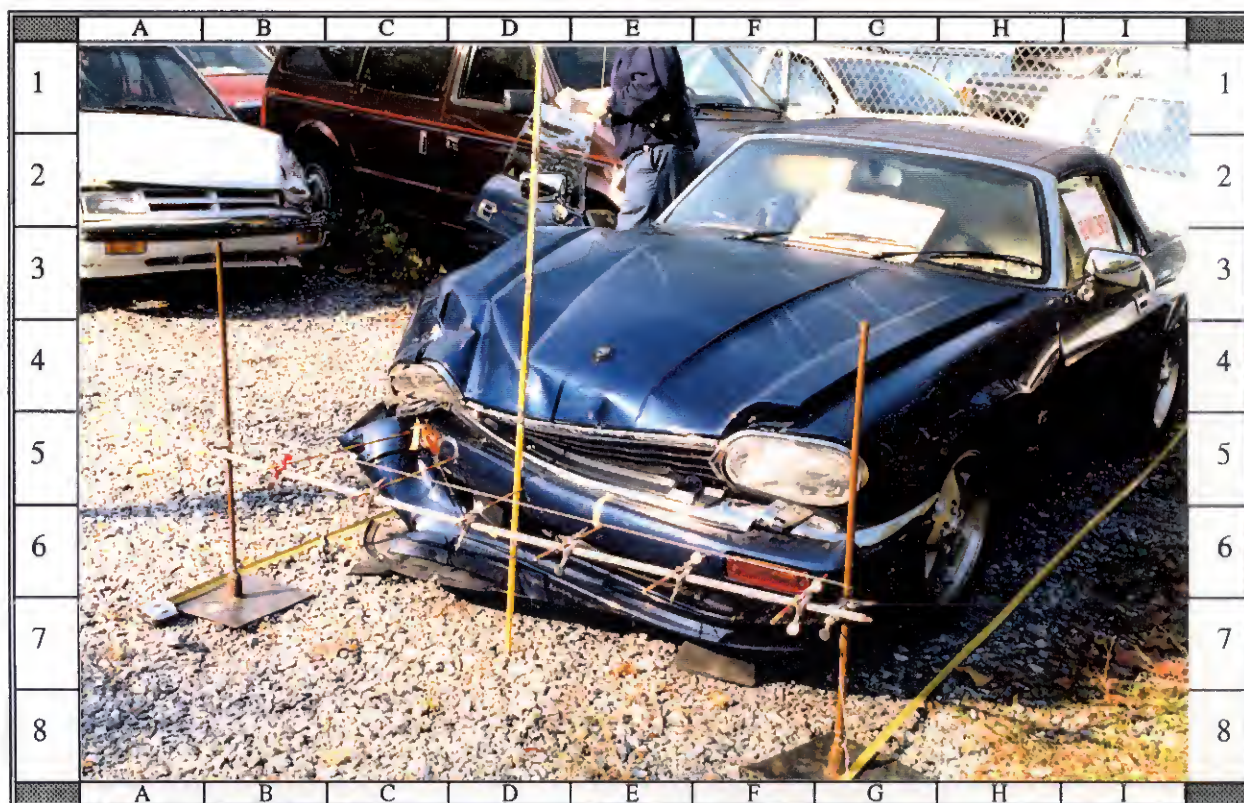


# 14 -- 1995 Jaguar XJS's damaged front without contour gauge





# 15 -- Case Vehicle's damaged front with contour gauge present



# 16 -- Case Vehicle's damaged front viewed from approximately 30 degrees left of front with contour gauge present





**# 17 -- Case Vehicle's damaged front and induced damage to left fender near driver's door viewed from ~ 45 degrees left of front**



**# 18 -- Reference line view of Case Vehicle's front damage from left with contour gauge present; NOTE: left bumper corner induced outward**





# 19 -- Case Vehicle's essentially undamaged (i.e., no direct damage) left side viewed from approximately 30 degrees left of back



# 20 -- Case Vehicle's essentially undamaged (i.e., no direct damage) left side and back viewed from approximately 60 degrees left of back





# 21 -- Case Vehicle's undamaged back viewed from approximately 60 degrees right of back

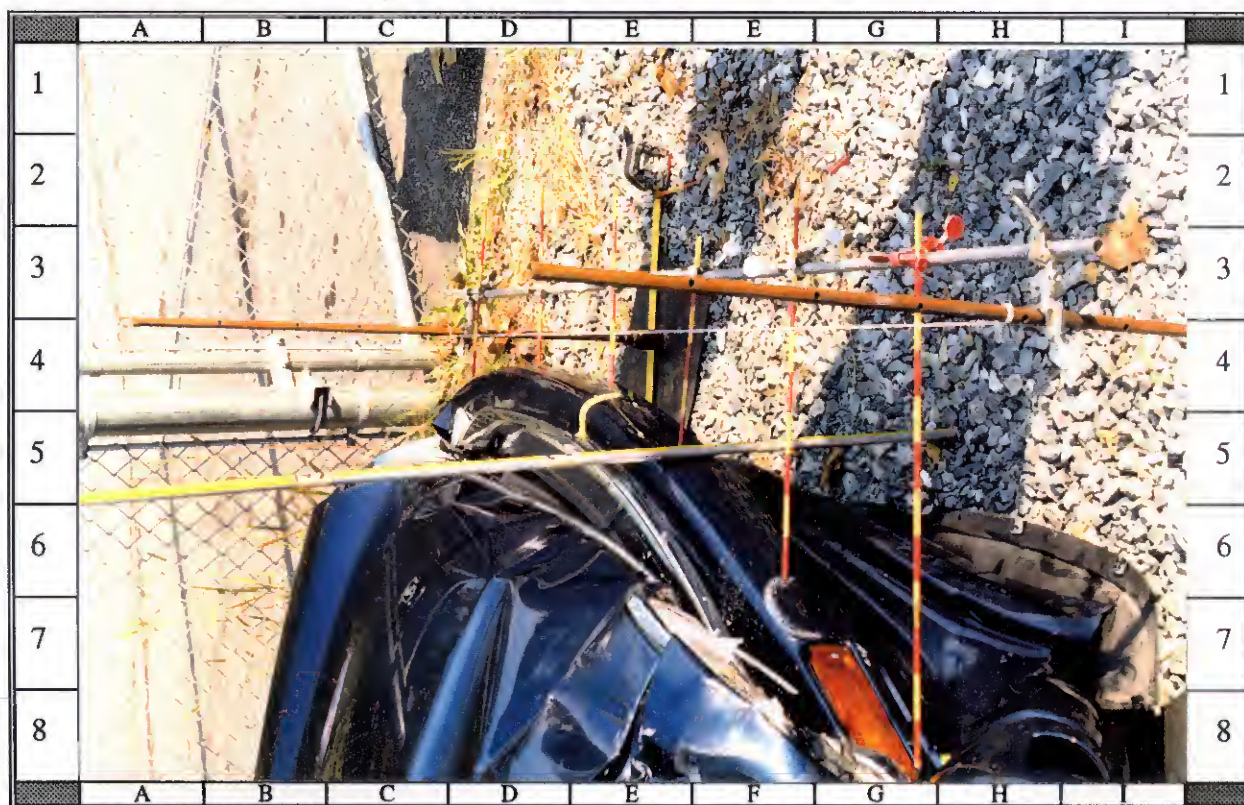


# 22 -- Case Vehicle's right front fender showing restricted right front wheel and direct contact to rim (cells B7--C8)





# 23 -- Close-up of direct damage to Case Vehicle's right fender (cells D5--E5) which occurred during rotation to final rest with Vehicle #2

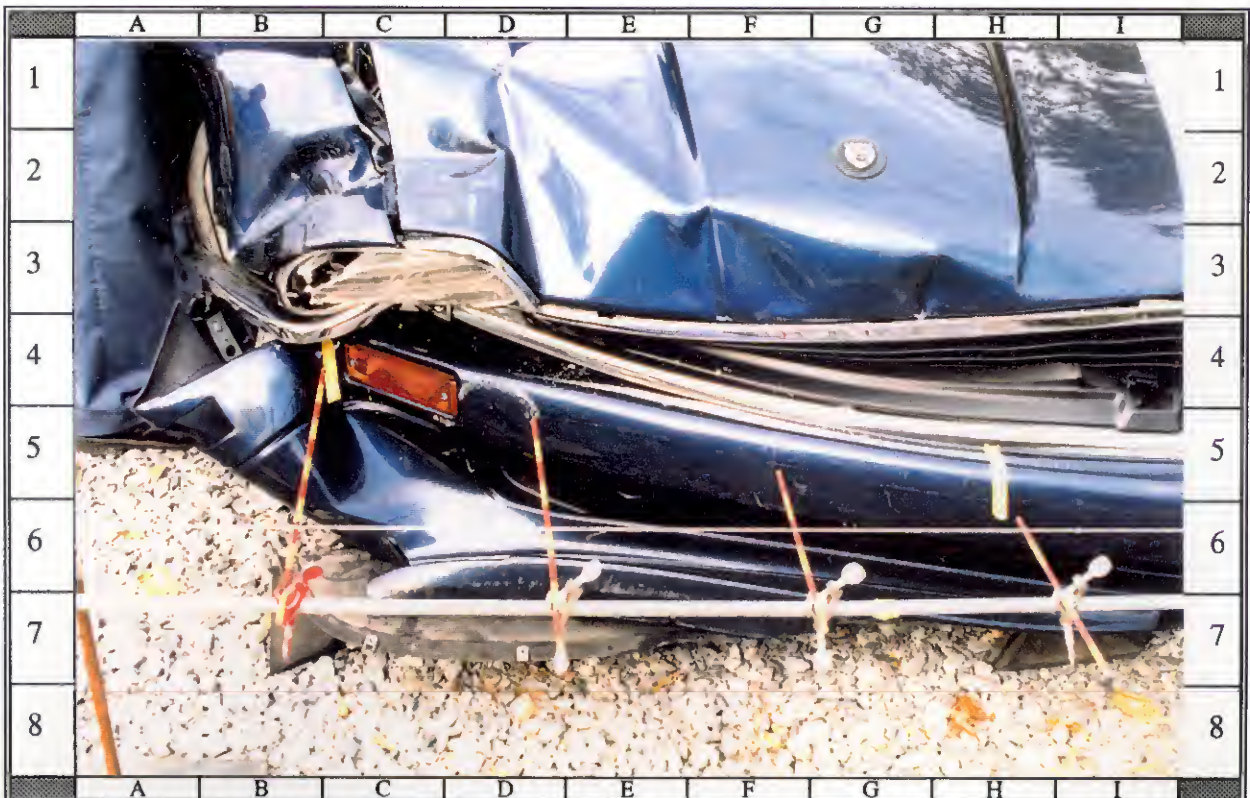


# 24 -- Reference line view of Case Vehicle's front damage from right with contour gauge present; NOTE: maximum crush occurs at C<sub>6</sub>



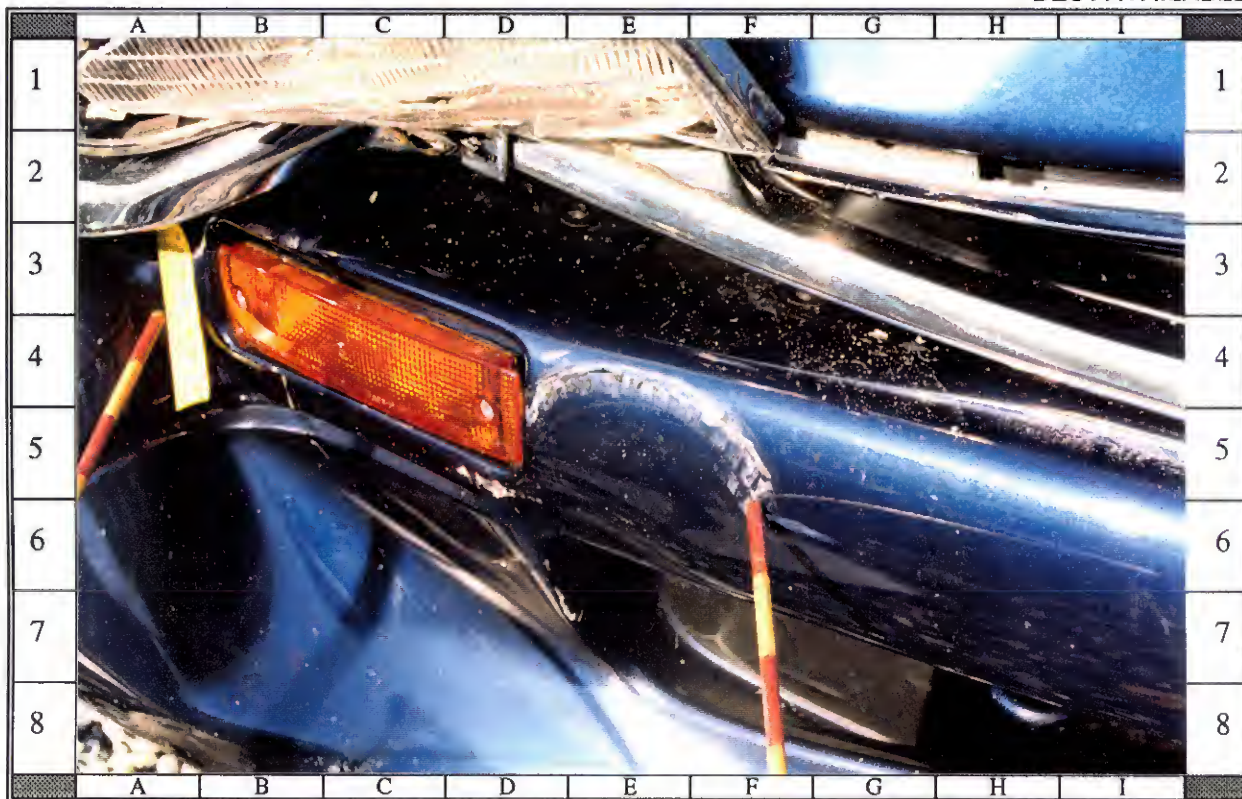


# 25 -- Case Vehicle's frontal damaged viewed from approximately 30 degrees right of front



# 26 -- Close-up of direct damage to front right of Case Vehicle; NOTE: yellow tape indicates width of direct damage





**# 27 -- Close-up of imprint on Case Vehicle's damaged front bumper from Vehicle #2's left front hubcap (see PHOTO #62)**



**# 28 -- Overhead view of Case Vehicle's frontal crush profile with contour gauge present; NOTE: max crush at C<sub>6</sub> (cell C5)**





**# 29 -- Interior surface of Case Vehicle's driver door and window showing no contact evidence**

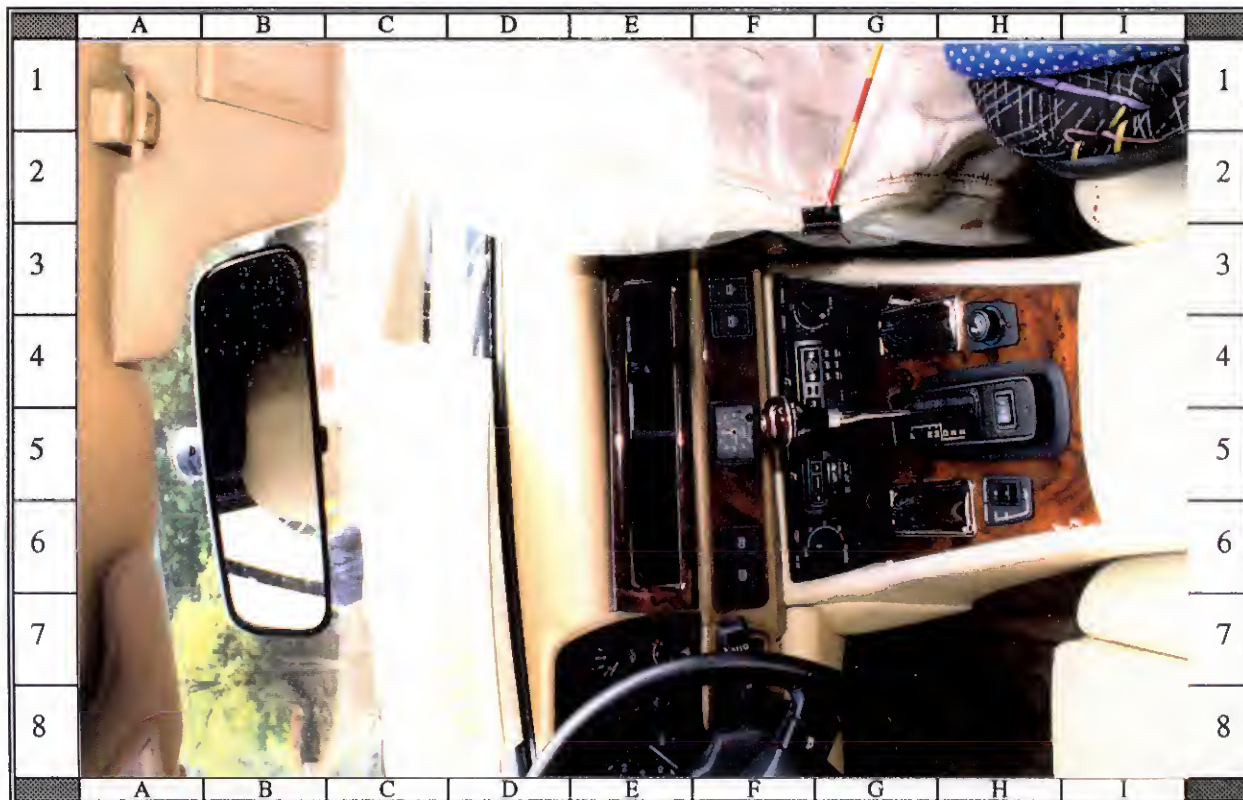


**# 30 -- Case Vehicle's front seating area from left showing nondeployed driver air bag and deployed right front passenger air bag**





# 31 -- Case Vehicle's driver seating and greenhouse areas; NOTE: no contact evidence and right front passenger's blood on driver's seat

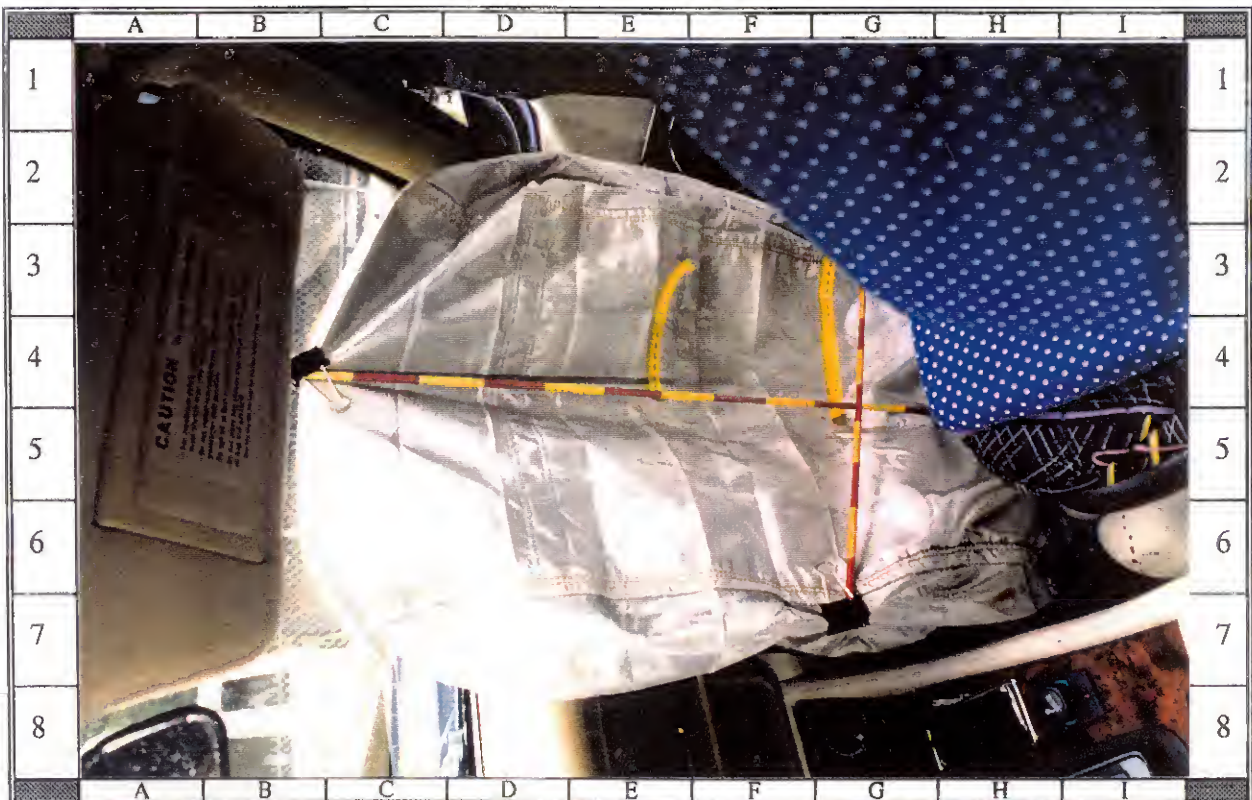


# 32 -- Case Vehicle's center console, rearview mirror, and header area; NOTE: air bag generant residue on rearview mirror





# 33 -- Case Vehicle's right front sunvisor, header, A-pillar, roof, and roof siderail--including handgrip, showing no evidence of contact



# 34 -- Case Vehicle's deployed right front passenger air bag showing contact evidence between taped area (cells E3--F4) viewed from center rear





# 35 -- Case Vehicle's deployed right front passenger air bag showing contacted area between tape, vertical rod, and right seam viewed from right front door



# 36 -- Close-up of contact evidence on Case Vehicle's right front passenger air bag;  
NOTE: blood spot (cell E5)



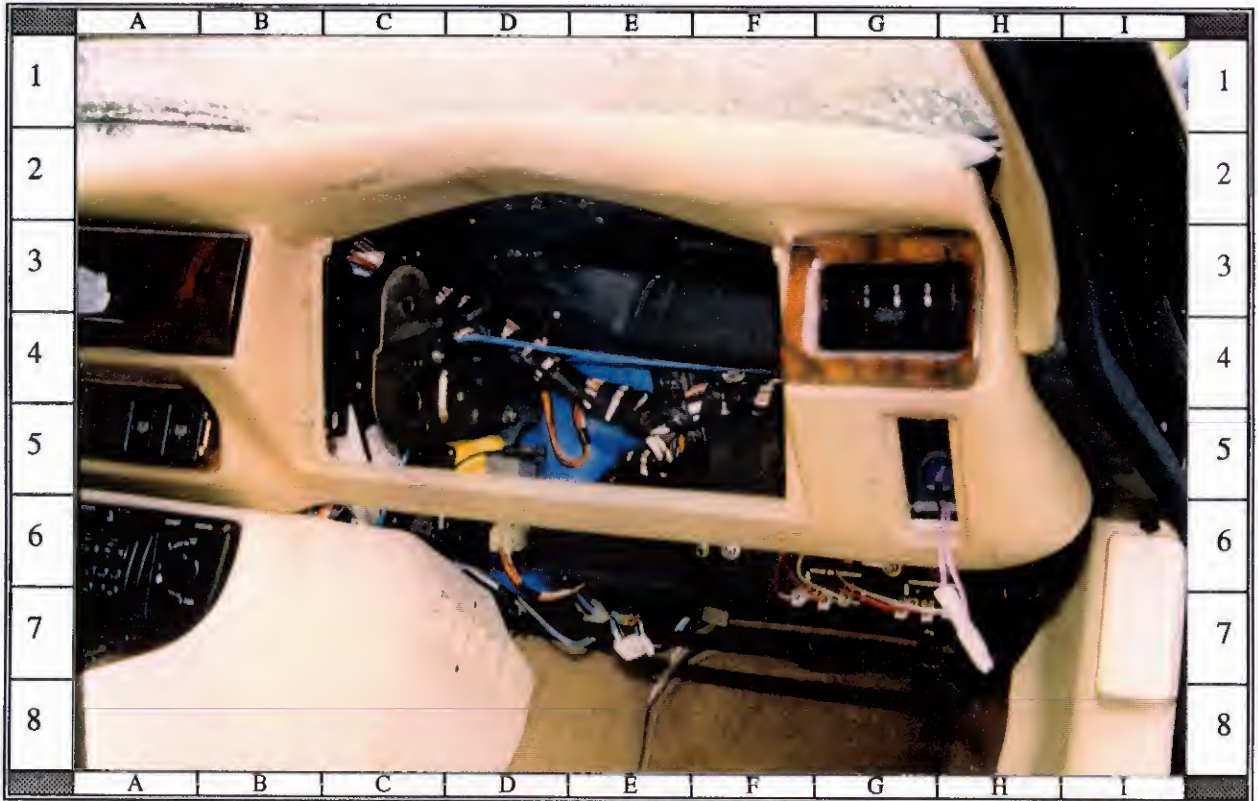


# 37 -- Topdown view of Case Vehicle's right front passenger air bag showing singeing to lower right seam below contacted area



# 38 -- Top portion of Case Vehicle's right front passenger air bag; NOTE: top cover flap (facia) deformed dash (cell E1--F1)





**# 39 -- Case Vehicle's right dash after removal of right front passenger air bag;  
NOTE: upper dash deformed by top cover flap (facia)**



**# 40 -- Case Vehicle's bottom air bag cover flap (facia) which was blown off during  
deployment; NOTE: no evidence of contact**





# 41 -- Case Vehicle's right front passenger seating area with air bag stretched out simulating deployment--viewed from right



# 42 -- Case Vehicle's right front passenger air bag stretched out simulating deployment--viewed from back right





# 43 -- Interior surface of Case Vehicle's right front door and window; NOTE: no contact evidence but excess air bag generant on window



# 44 -- Interior view of Case Vehicle's back seating area; NOTE: outboard integral head and 3-point lap and shoulder restraints



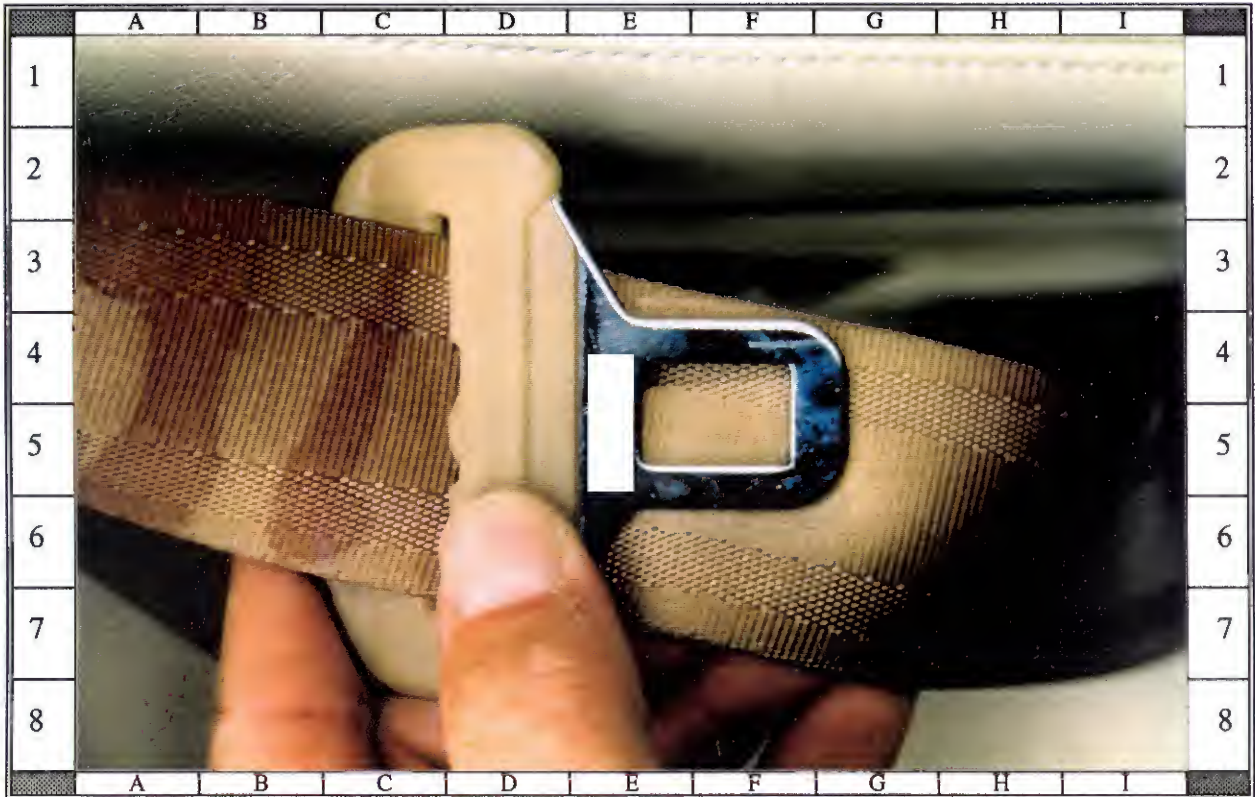


**# 45 -- Case Vehicle's right front seat with child's booster seat and seatbelt fastened;  
NOTE: blood on belt (cells E4 and F6)**

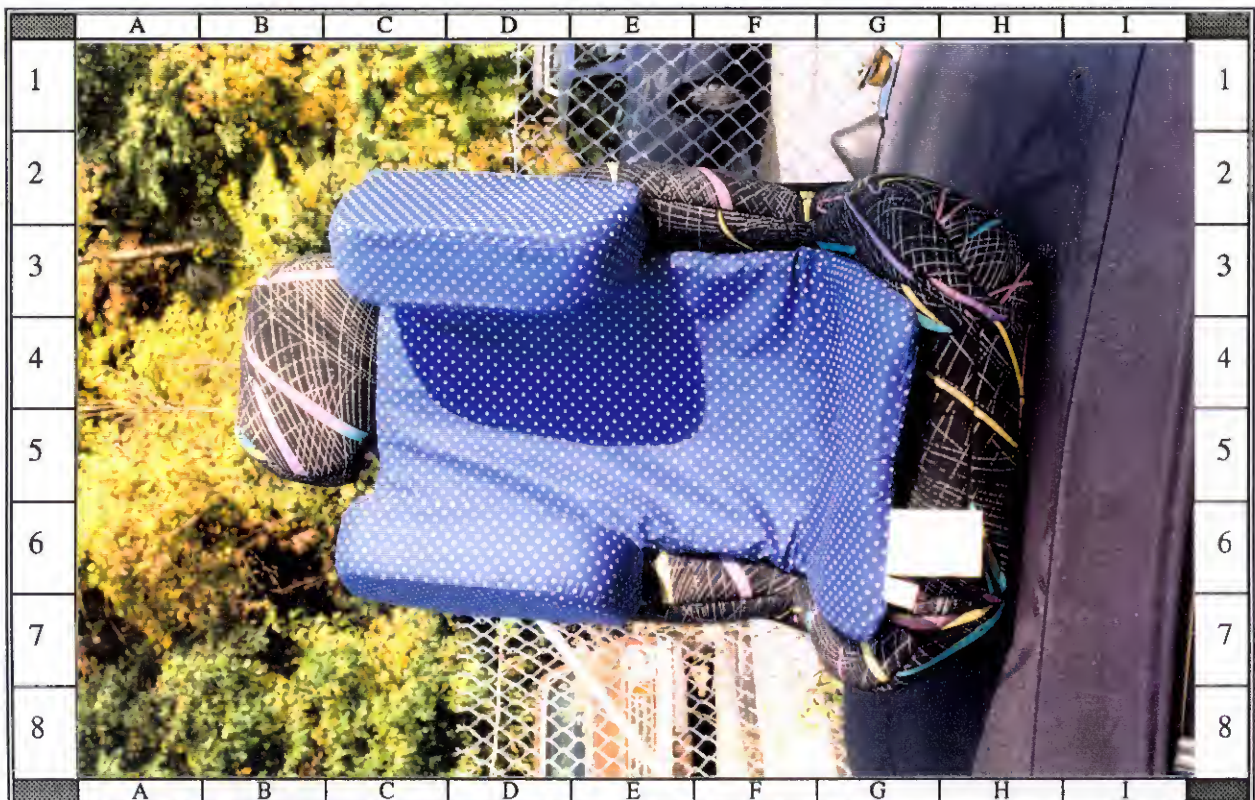


**# 46 -- Close-up of Case Vehicle's right front seat with secured child booster seat;  
NOTE: blood stains on lap and shoulder belts**



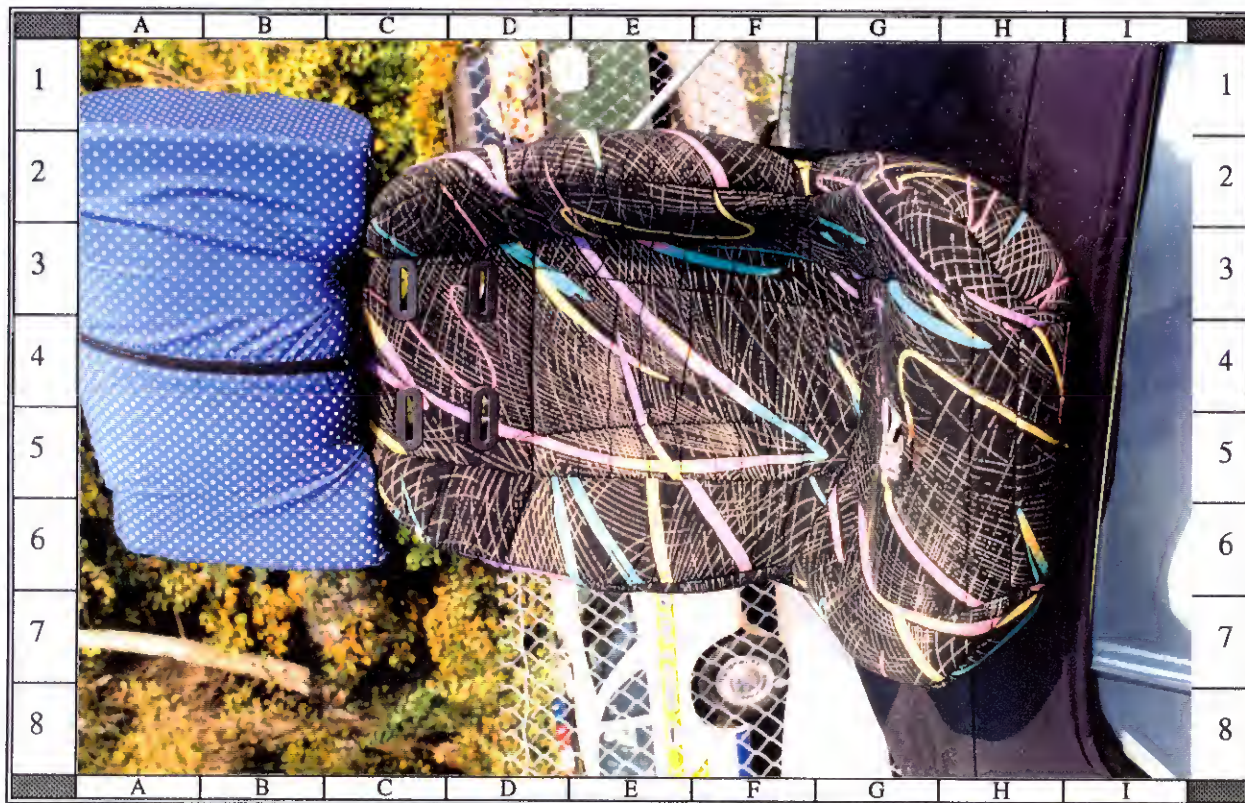


# 47 -- Close-up of male end of Case Vehicle's right front passenger seatbelt; NOTE: blood stain

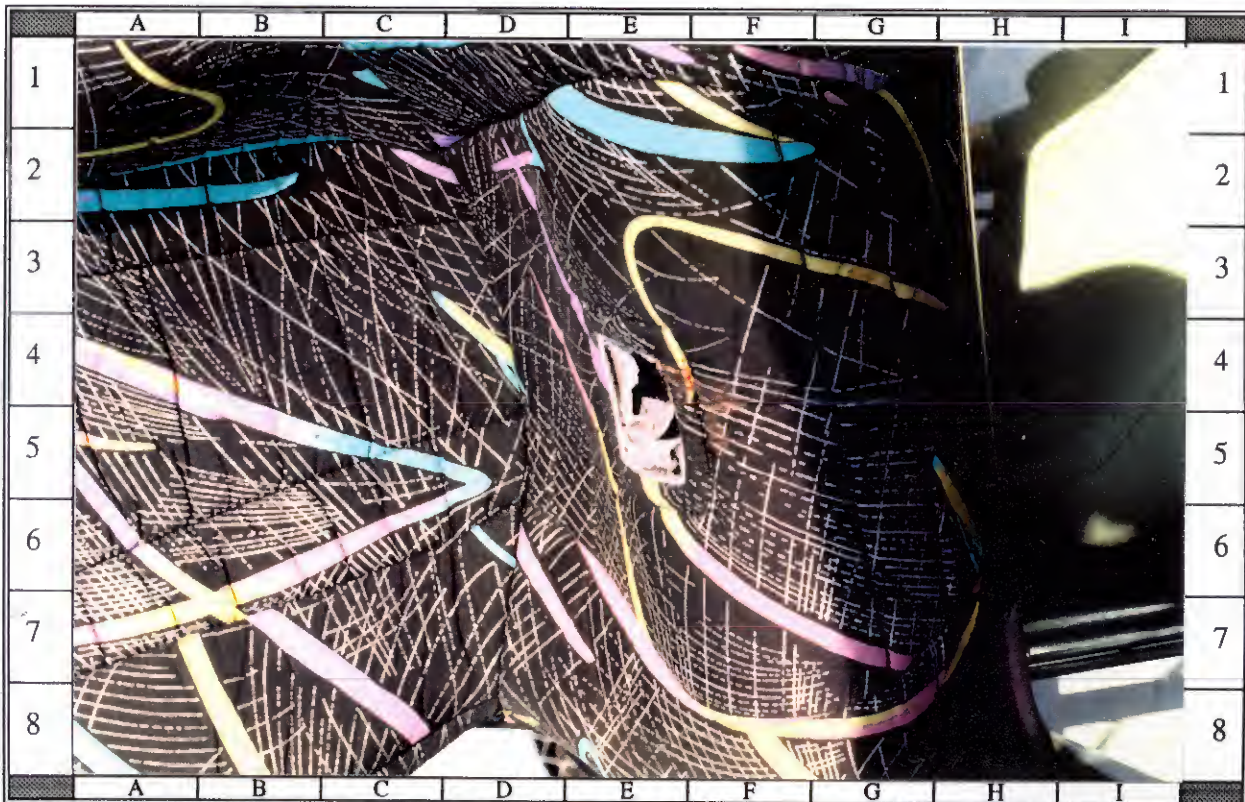


# 48 -- Century Breverra booster seat after it was removed from the Case Vehicle's right front seat; NOTE: added blue polka-dot pad





# 49 -- Case Vehicle's Century Breverra booster seat with add-on pad lifted away;  
NOTE: blood spot on seat's pad (cell G5)

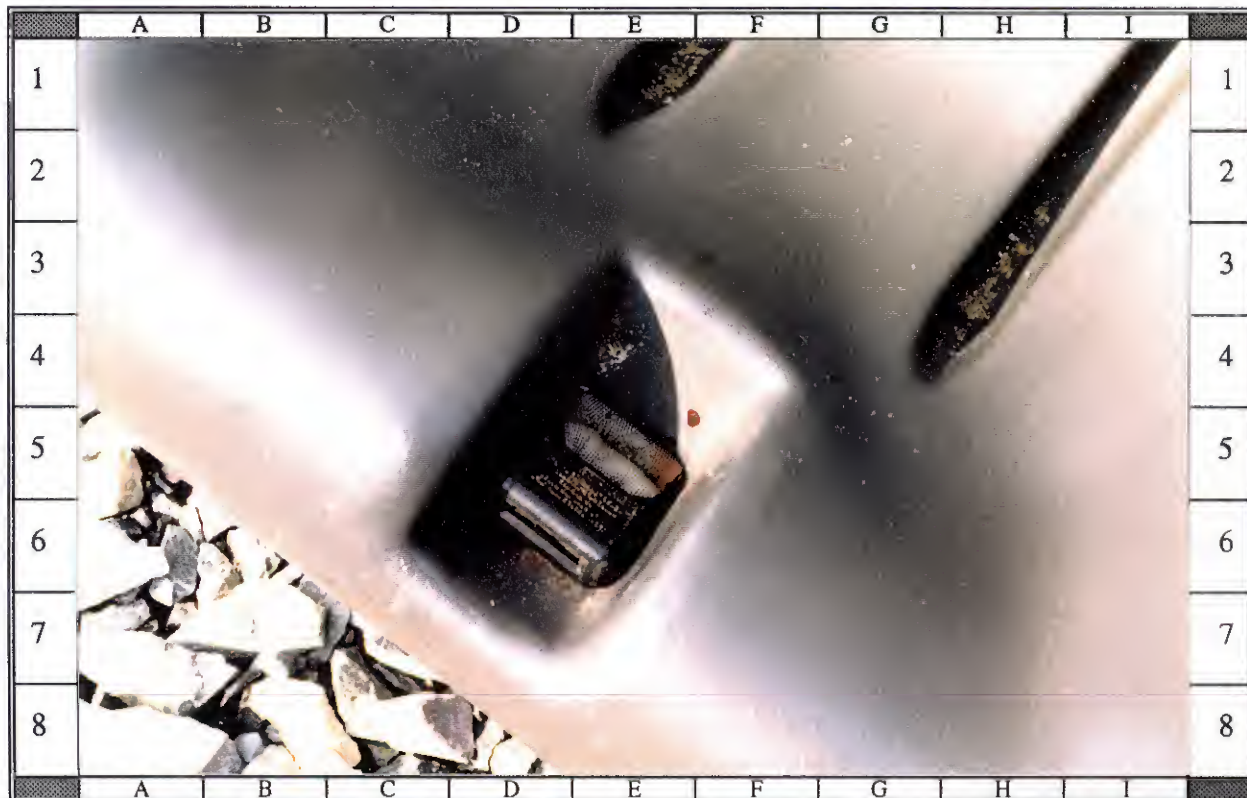


# 50 -- Close-up of blood spot on child booster seat's pad; booster seat installed in  
Case Vehicle's right front seat





# 51 -- Century Breverra child booster seat's plastic shell with padding pulled away;  
NOTE: blood drop near harness clasp (cells G4--G5)

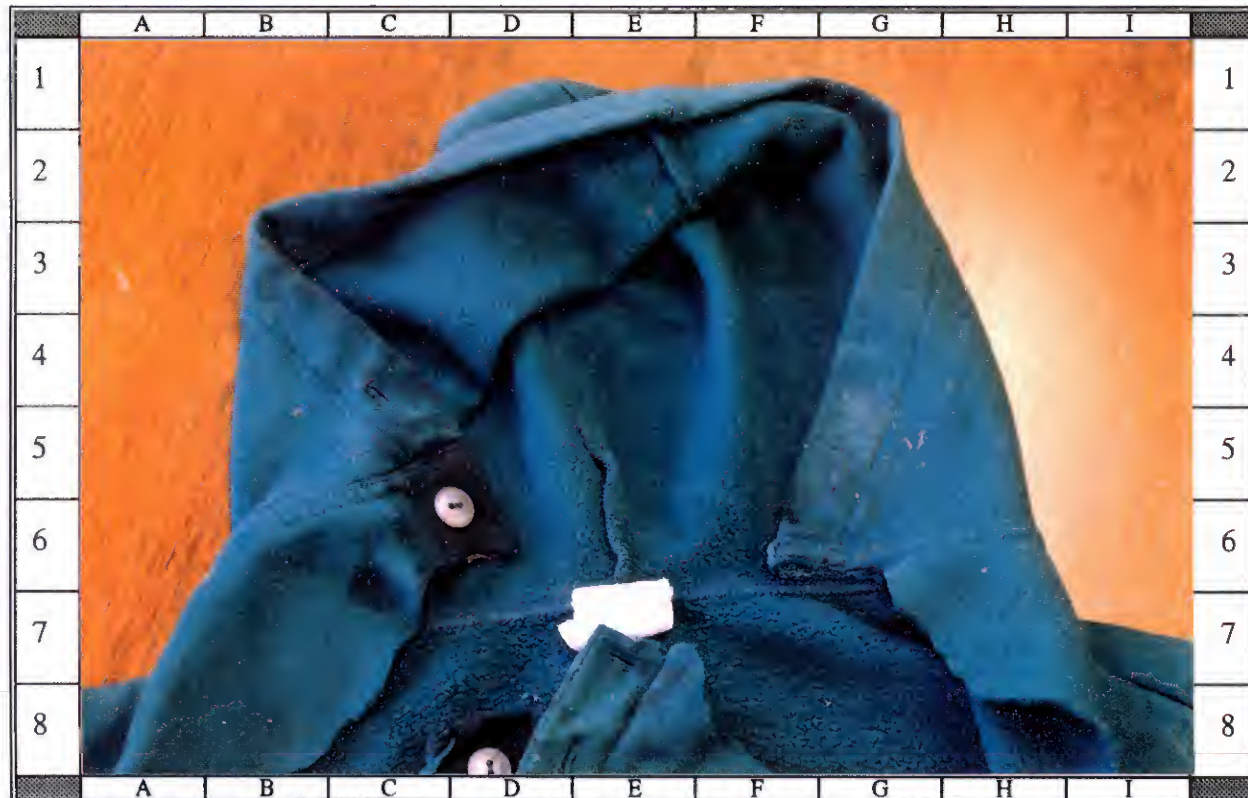


# 52 -- Close-up of blood drop on Century Breverra's plastic shell and blood stain to clasp webbing





**# 53 -- Bloodied sweatshirt worn by child in Case Vehicle's right front seat; NOTE: EMT personal cut sweatshirt off child**



**# 54 -- Close-up of bloodstains (cell C5--D6) and unknown substance to neckline of sweatshirt worn by Case Vehicle's child occupant**



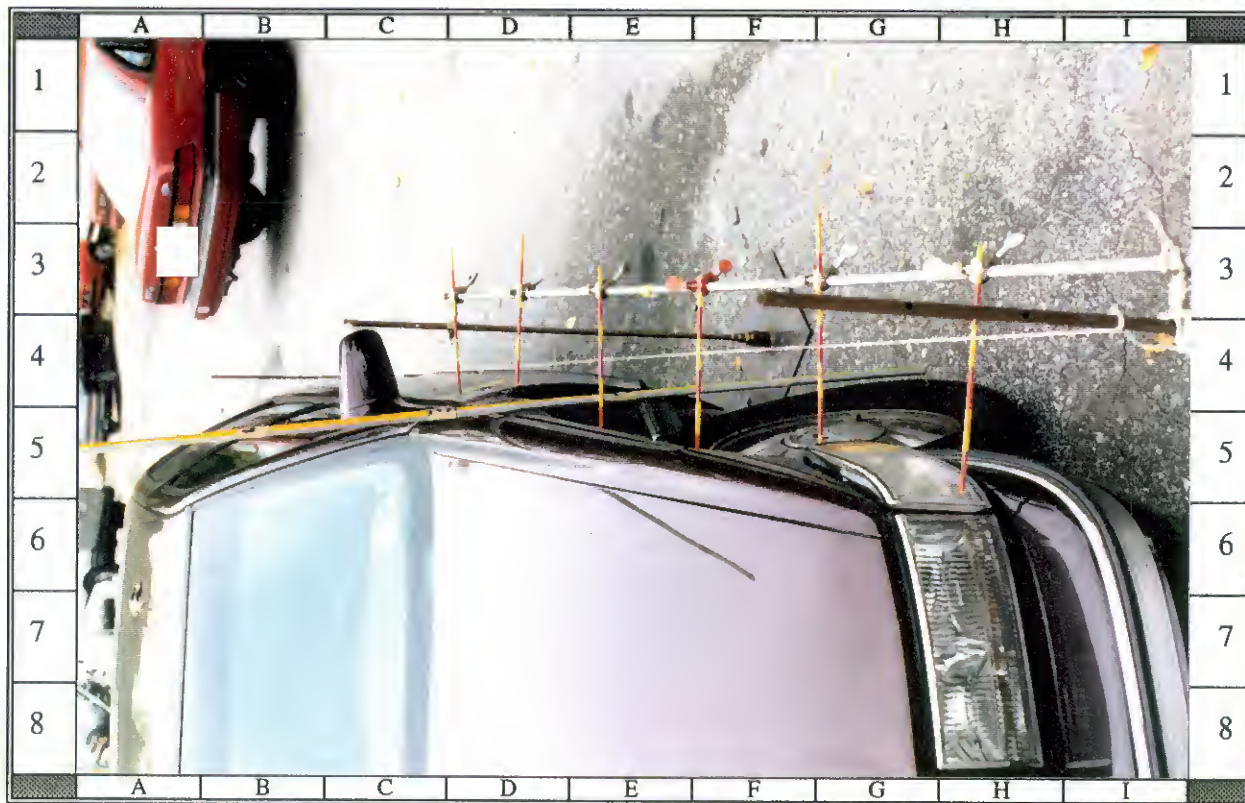


# 55 -- Bloodied T-shirt worn by Case Vehicle's right front child occupant

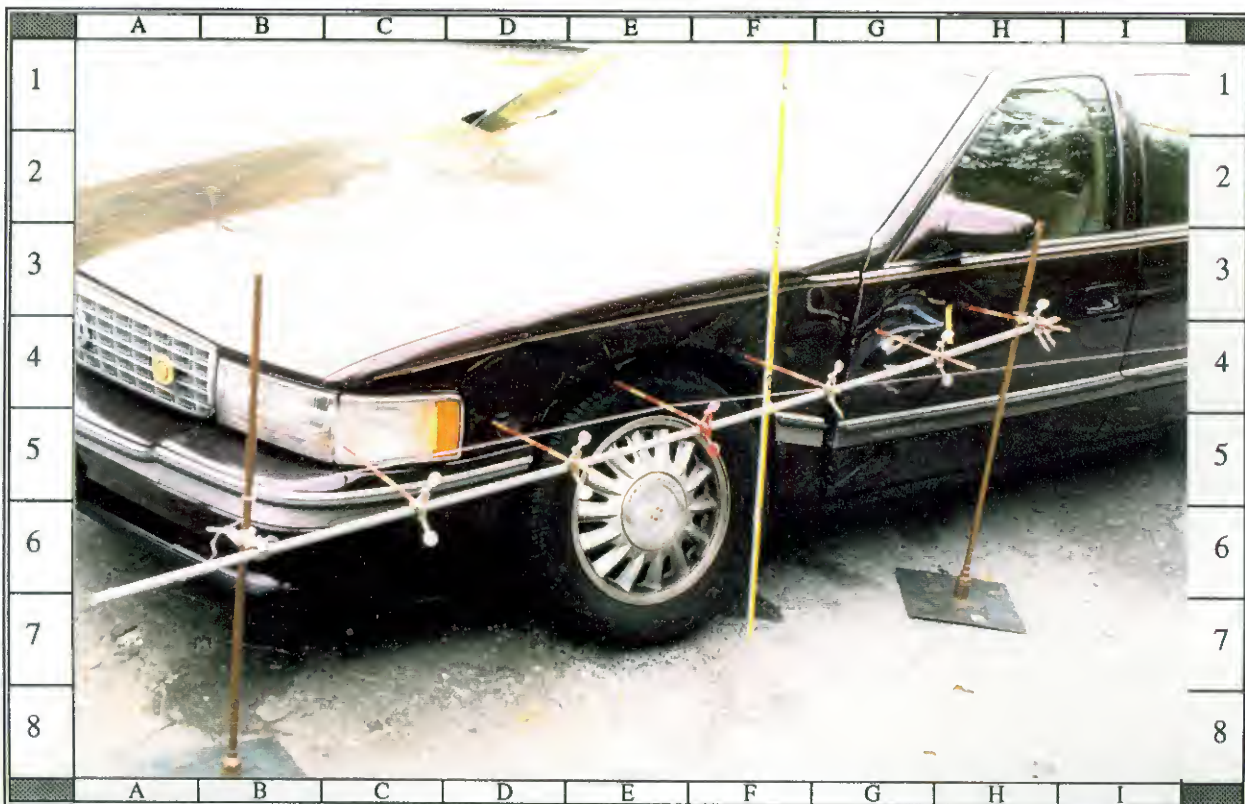


# 56 -- 1994 Cadillac Concourse's undamaged front





# 57 -- Reference line view of Vehicle #2's left side from front showing crush profile



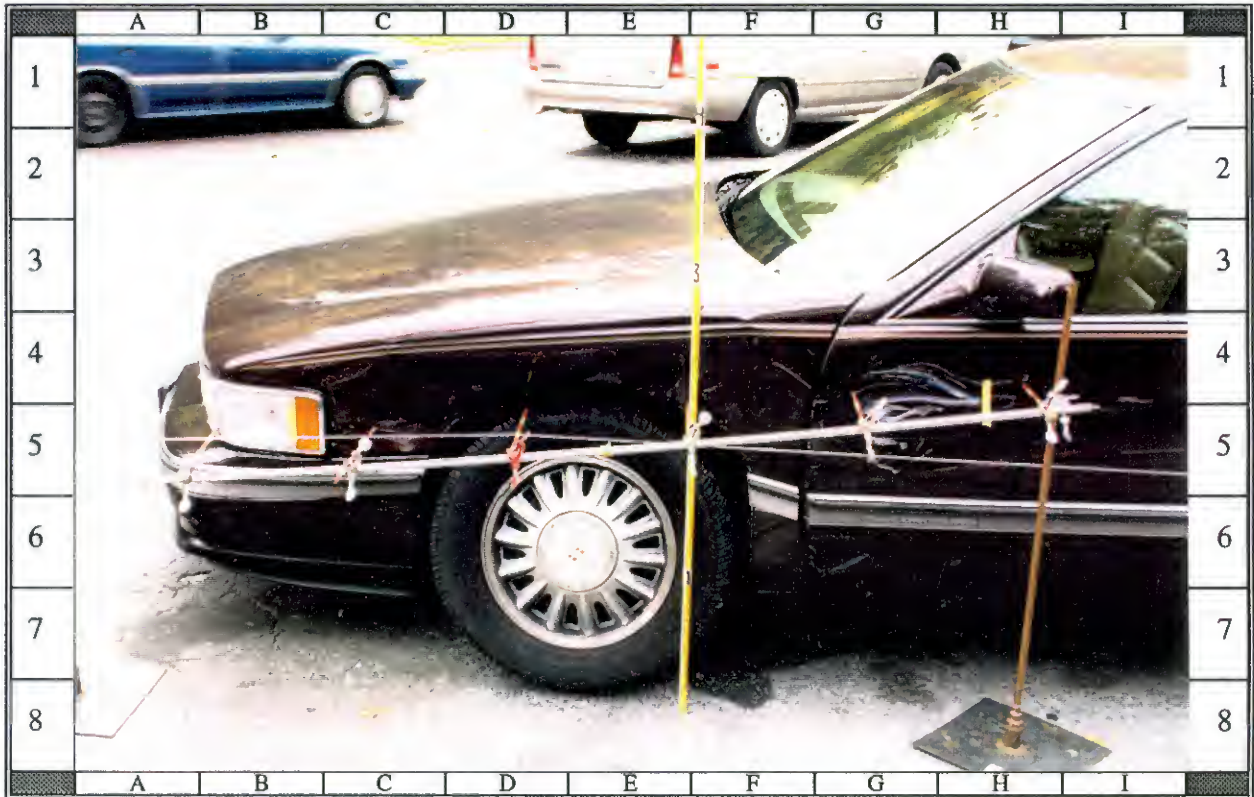
# 58 -- Vehicle #2's damaged left side viewed from approximately 60 degrees left of front with contour gauge present

## **PHOTOGRAPHS**

**#59 and #60**  
*(PAGE 30)*

**NOT AVAILABLE**





# 61 -- Vehicle #2's damaged left fender, wheel, and door with contour gauge present;  
NOTE: max crush to wheel well area and direct contact to hubcap

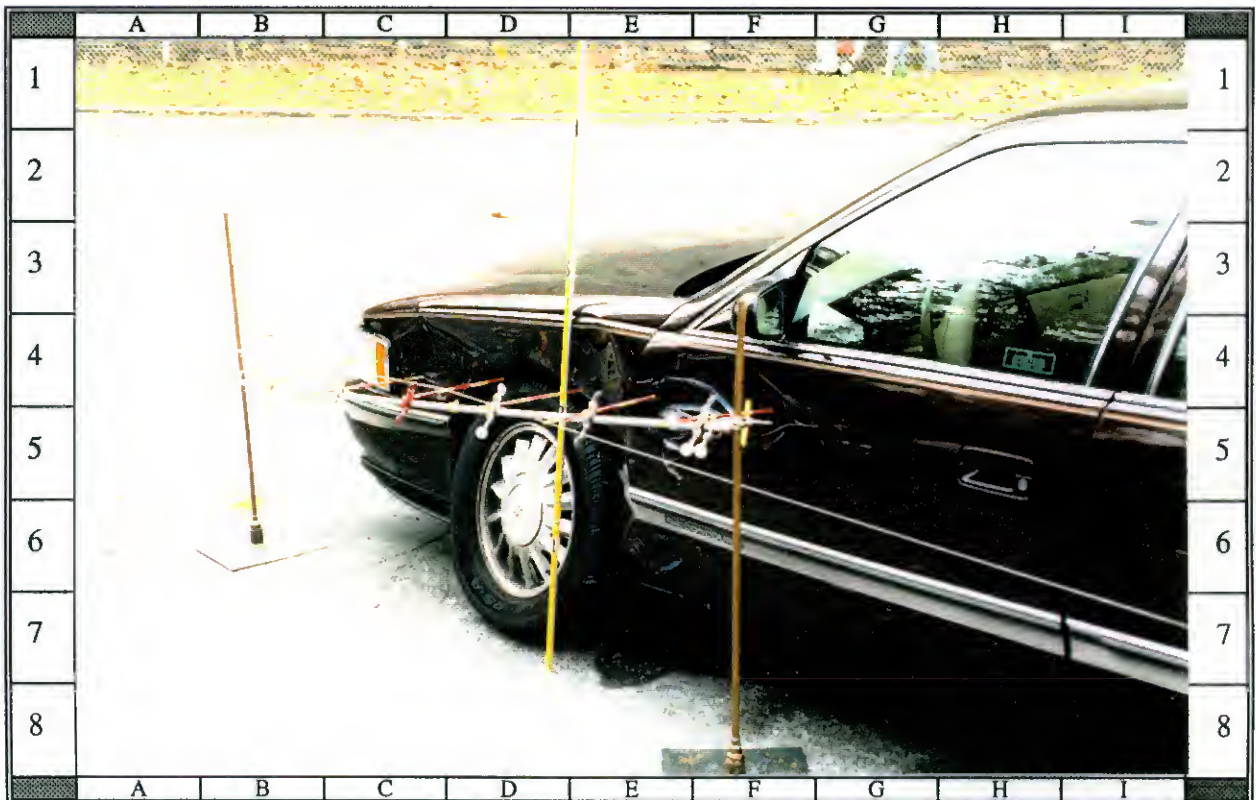


# 62 -- Close-up of direct damage to left front wheel/hubcap of Vehicle #2; NOTE:  
paint transfer from case vehicle (see PHOTO #27)





# 63 -- Close-up of Vehicle #2's left side damage viewed from approximately 60 degrees left of rear



# 64 -- Vehicle #2's left side damage viewed from ~ 60 degrees left of rear; NOTE: left front wheel's inward tilt





# 65 -- Vehicle #2's undamaged left rear side and back



# 66 -- Vehicle #2's undamaged back and right side viewed from ~ 45 degrees right of back





# 67 -- Vehicle #2's undamaged front and right side viewed from ~ 45 degrees right of front



# 68 -- Interior surface of Vehicle #2's driver door and window; NOTE: no contact evidence present





# 69 -- Vehicle #2's driver seating area viewed from driver's door; NOTE: no contact evidence and nondeployed driver's air bag



# 70 -- Vehicle #2's dash, steering wheel, and right front passenger seating area viewed from right front door



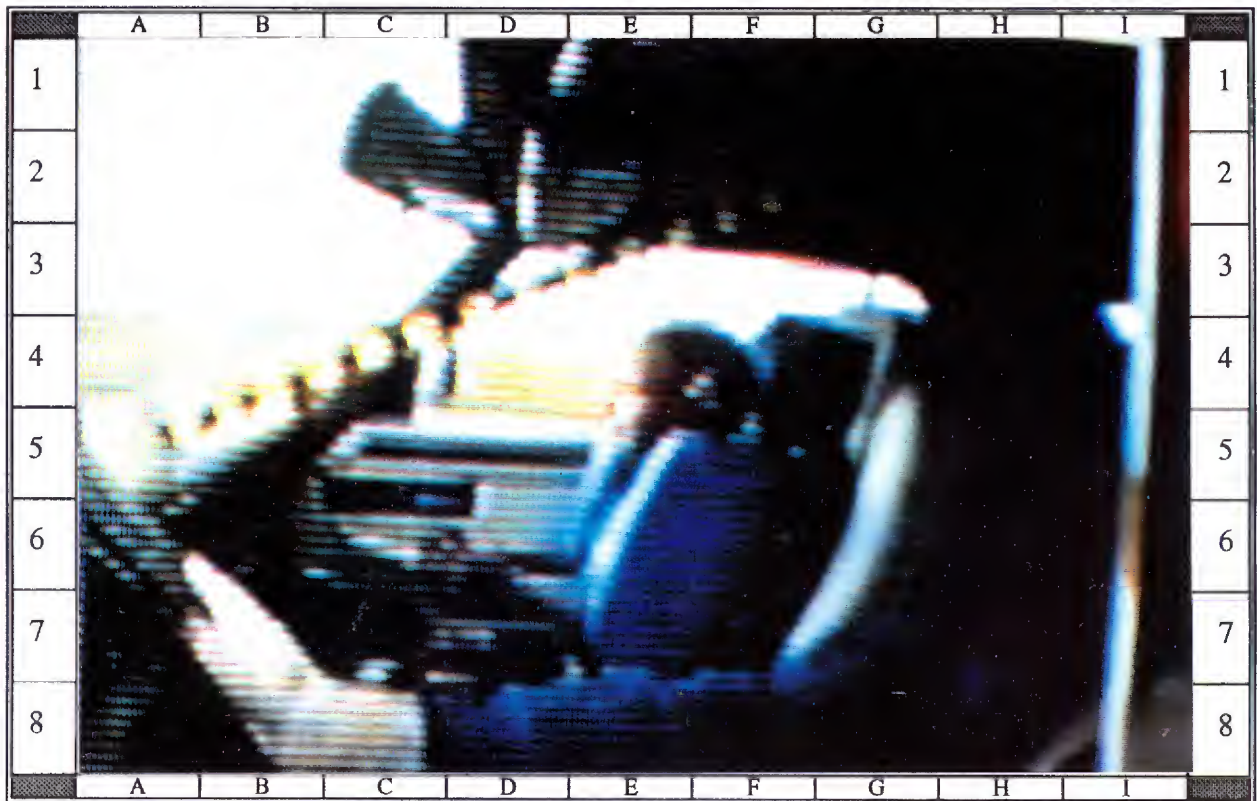


# 71 -- Interior surface of Vehicle #2's right front door and window and right front dash and toepan areas; NOTE: no contact evidence present

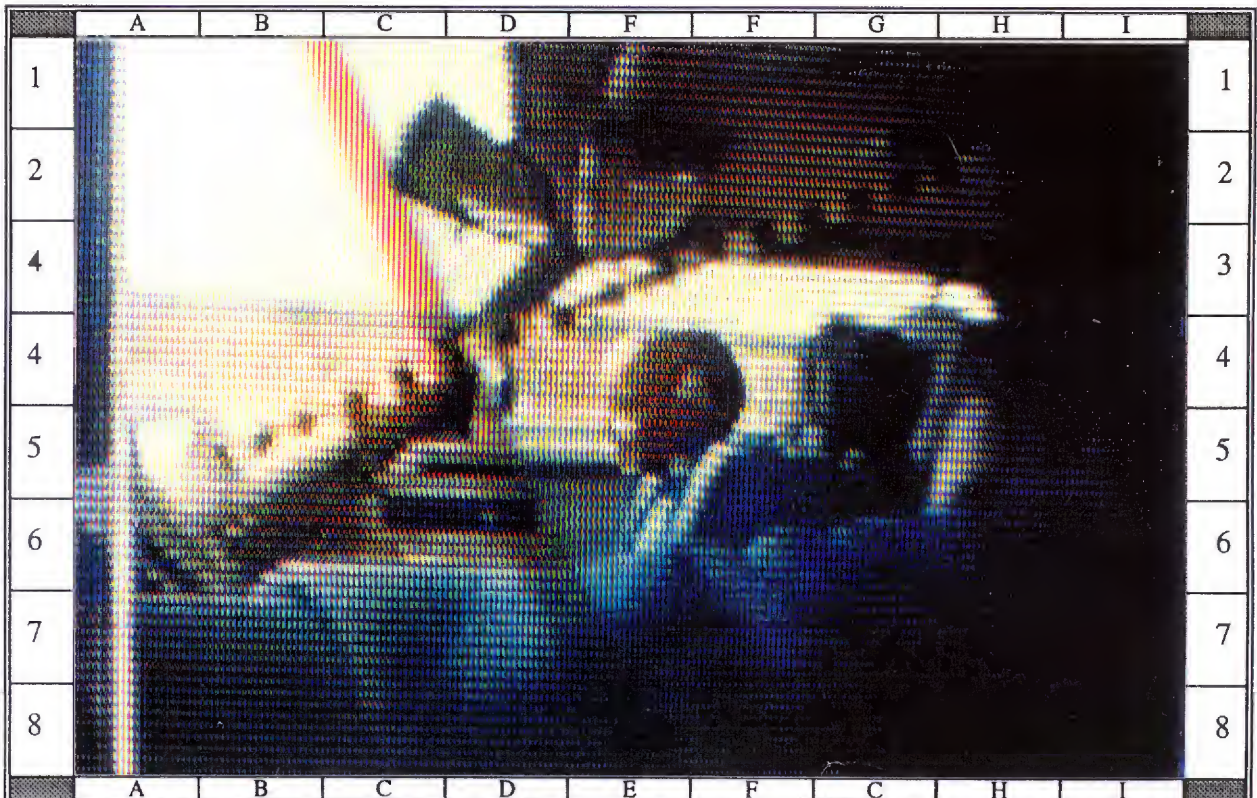


# 72 -- Vehicle #2's rear passenger seating area; NOTE: outboard 3-point lap and shoulder belts and no head restraints



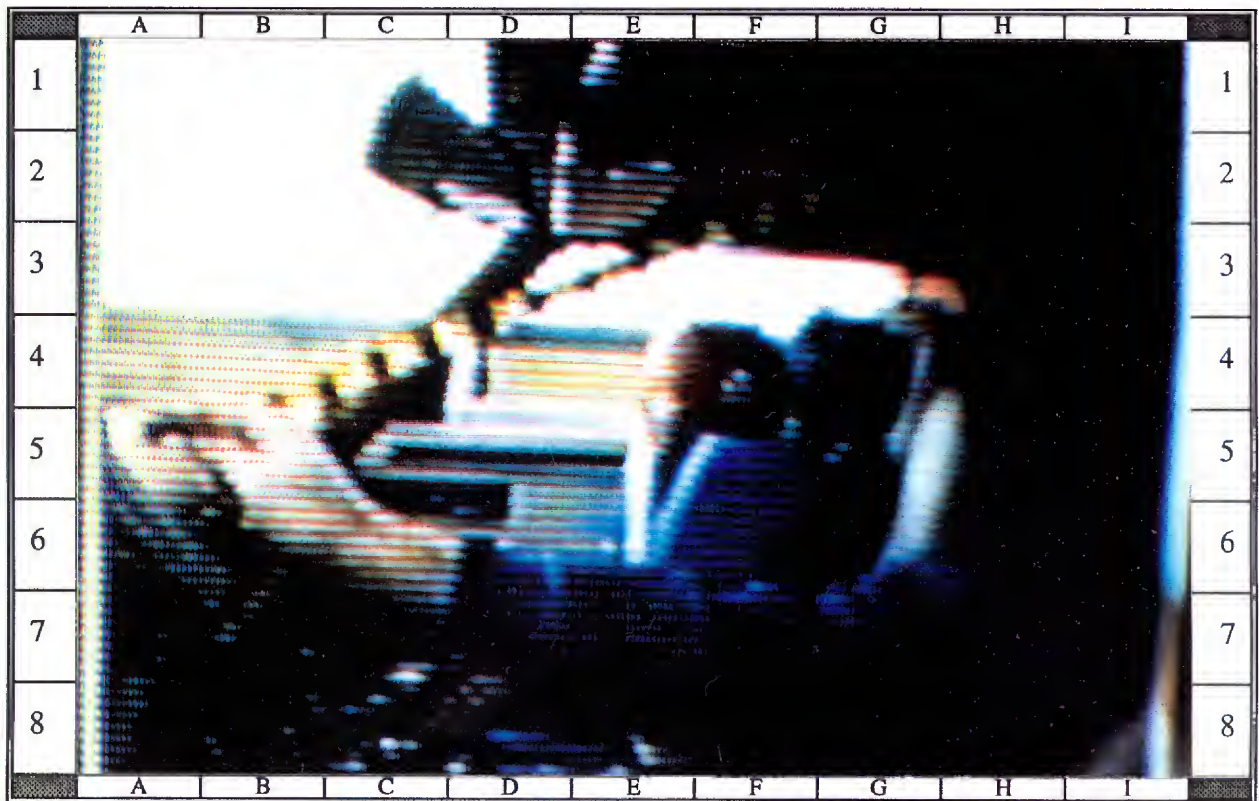


**# 73 -- VRTC's Run #6: child in pre-crash test position--torso belt snug over top of add-on head bolster**

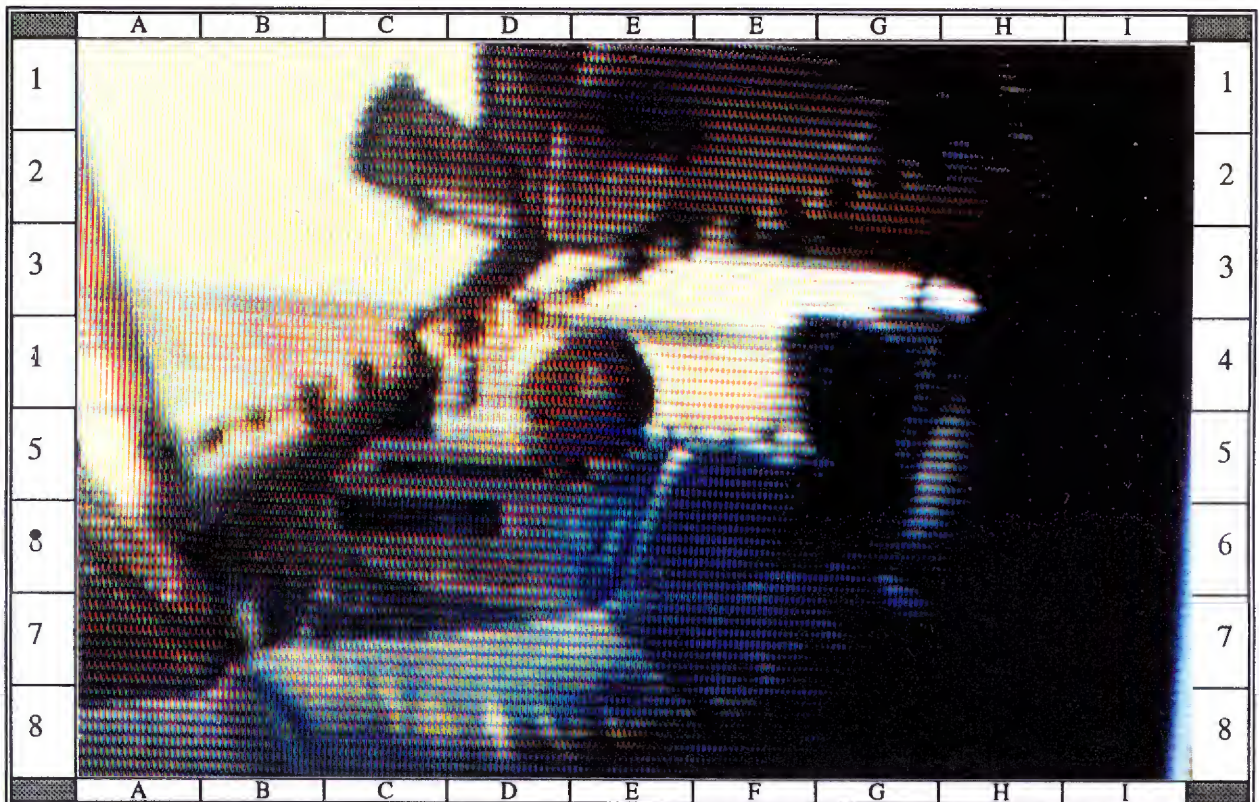


**# 74 -- VRTC's Run #6: decelerating @ .08g and swerving left; child's maximum forward position--torso belt snug over top of add-on head bolster**





**# 75 -- VRTC's Run #7: child in pre-crash test position--torso belt snug over top edge of add-on head bolster's side**

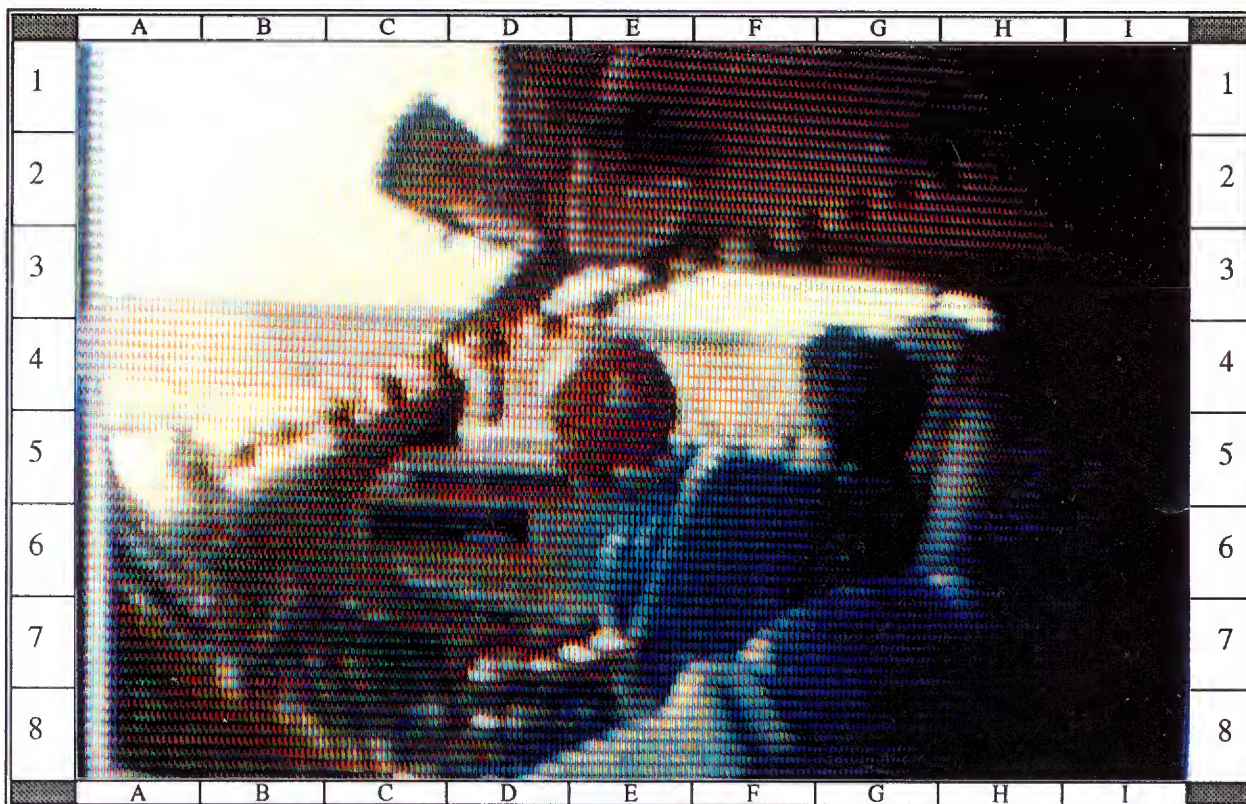


**# 76 -- VRTC's Run #7: decelerating @ .08g and swerving left; child's maximum forward position--torso belt snug over top edge of add-on head bolster's side**





**# 77 -- VRTC's Run #8: child in pre-crash test position--torso belt snug over center of add-on head bolster's side**



**# 78 -- VRTC's Run #8: decelerating @ .08g and swerving left; child's maximum forward position--torso belt snug over center of add-on head bolster's side**

**TABLE 1 Matrix of Pre-Impact Braking Maneuvers**

Run	Speed	Decel.	Steering	Belt Config.	Dummy Config.
1	30	0.9	straight	Snug, over top of head bolster	Full rearward, centered
2	30	0.9	straight	Snug, top edge of head bolster	Full rearward, centered
3	30	0.9	straight	Snug, center of head bolster	Full rearward, centered
4	30	0.9	straight	Snug, bottom of head bolster	Full rearward, centered
5	30	0.9	straight	Snug, under right arm	Full rearward, centered
6	30	0.8	left	Snug, over top of head bolster	Full rearward centered
7	30	0.8	left	Snug, top edge of head bolster	Full rearward, centered
8	30	0.8	left	Snug, center of head bolster	Full rearward, centered
9	30	0.8	left	Snug, bottom of head bolster	Full rearward, centered
10	30	0.8	left	Snug, under right arm	Full rearward, centered
11	30	0.8	left	Snug, under right arm	Leaning fwd, centered
12	30	0.8	left	Snug, bottom of head bolster	Leaning fwd, centered
13	30	0.8	left	Snug, center of head bolster	Leaning fwd, centered
14	30	0.9	straight	Snug, center of head bolster	Leaning fwd, centered
15	30	0.9	straight	Snug, bottom of head bolster	Leaning fwd, centered
16	30	0.9	straight	Snug, under right arm	Leaning fwd, centered
17	30	0.9	straight	Snug, under right arm	Leaning fwd, centered